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Dr. Lazar Stošić

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Address: Prvi maj 18, 17500 Vranje, Serbia

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College for Preschool Teachers

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	<p style="text-align: center;">International Journal of Cognitive Research in Science, Engineering and Education</p> <p style="text-align: center;">(IJCRSEE)</p>
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EDITORIAL

International Journal of Cognitive Research in Science, Engineering and Education (IJCRSEE) is an open access international peer-reviewed, open-access journal, which provides a platform for highlighting and discussing various cognitive science issues dealing with the problems of cognition (and its evolution) within some specific subject field - philosophical, psychological, linguistic, mathematical, psychogenetic, pedagogical, ergonomic. Editorial Board strives to provide a possibility for the scientists of different fields to publish the results of their research, technical and theoretical studies. IJCRSEE is multidisciplinary in approach, and will publish a great range of papers: reports of qualitative case studies, quantitative experiments and surveys, mixed method studies, action researches, meta-analyses, discussions of conceptual and methodological issues, etc. IJCRSEE publisher is The Association for the Development of Science, Engineering and Education, Vranje, Serbia. Quality control, assisting and monitoring are supported by co-publishers:

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The main **aim** of the Journal is to discuss global prospects and innovations concerning major issues of cognitive science, to publish new scientific results of cognitive science research, including the studies of cognitive processes, emotions, perception, memory, thinking, problem solving, planning, education and teaching, language and consciousness study, the results of studying man's cognitive development and the formation of basic cognitive skills in everyday life. The Journal seeks to stimulate the initiation of new research and ideas in cognitive science for the purpose of integration and interaction of international specialists in the development of cognitive science as interdisciplinary knowledge.

All articles are published in English and undergo a peer-review process.

The **scope** of IJCRSEE is focused on cognitive research both in topics covered as well as disciplinary perspective:

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Each submitted manuscript is evaluated on the following basis: the originality of its contribution to the field of scholarly publishing, the soundness of its theory and methodology, the coherence of its analysis, its availability to readers (grammar and style). Normal turn-around time for the evaluation of manuscripts is one to two months from the date of receipt.

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The submission file is in OpenOffice, Microsoft Word, RTF, or WordPerfect document file format.

Where available, URLs for the references have been provided.

The text is single-spaced; uses a 12-point font; employs italics, rather than underlining (except with URL addresses); and all illustrations, figures, and tables are placed within the text at the appropriate points, rather than at the end.

The text adheres to the stylistic and bibliographic requirements outlined in the Author Guidelines.

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A manuscript goes through the peer review process. Authors submit manuscripts to **Editorial office** via the online system. The acknowledgement letter should be sent to the author to

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Based on the reviewers' comments the Chief Editor makes a decision to:

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- Accept after revision
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After review a manuscript goes to the Copy Editor who will correct the manuscript concerning the correct referencing system, confirmation with the journal style and layout. When Copy Editor finishes his/her work they send manuscripts to the Layout editor.

Layout Editor is responsible for structuring the original manuscript, including figures and tables, into an article, activating necessary links and preparing the manuscript in the various formats, in our case PDF and HTML format. When Layout Editor finishes his/her job they send manuscripts to Proof Editor.

Proof Editor confirms that the manuscript has gone through all the stages and can be published.

This issue has 13 articles (11 original research and 2 review article). Our future plan is to increase the number of quality research papers from all fields of cognitive research in science, engineering and education. The editors seek to publish articles from a wide variety of academic disciplines and substantive fields; they are looking forward to substantial improvement of educational processes and outcomes.

Editor in Chief
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MODERN STUDENTS' MENTAL REPRESENTATIONS OF SUCCESS

Dr. Kibal'chenko Irina A., Department of psychology and life safety, Federal State-Owned Educational Autonomy Establishment of Higher Education «Southern Federal University», Taganrog, Russian Federation

E-mail: kibalirina@sfedu.ru

Dr. Eksakusto Tatiana V., Department of psychology and life safety, Federal State-Owned Educational Autonomy Establishment of Higher Education «Southern Federal University», Taganrog, Russian Federation

E-mail: exakusto@sfedu.ru

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concept signs/indices

ABSTRACT

The research is aimed at studying the success mental representations of students who are considered as the modern society members seeking for intellectual and personal resources integration. The article describes relevance and prospects of the success mental representations studying. These representations are considered to reflect personal real and potential success. Such methods as content and statistical analyses are used for the research. Quantitative analysis of signs/indices (total quantity: 555) and categories (total: 415) allowed the "success" concept cognitive structure characterizing. Categorizing the analyzed units helped to define modalities which become basic in the research and specified its conceptual scheme. Quadri classification of signs helped to find out the "success" concept organization style, having peculiarities based on the speed and accuracy of these signs selection, their structuring and integration. The summary of the research is based on the statistically significant conclusions. The level of the students' style cognitive and personal characteristics structuredness is determinantal for the success mental representations structural organization. The more complete and integral the success cognitive image is, the more mature and integrated the students' personal resource and experience are; in this case the students are highly motivated for reaching the success. The results of this research elaborate the idea and scientific facts about mental representations and can be informative and useful for cognitive psychology researchers and the persons working with students.

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1. INTRODUCTION

Successful representative of modern society is the person who's intellectual and personal resource is a consistent integrated system supporting person's psychological resistance and stability, ability to counter exogenous adverse effects and/or negative impact. This resource gives the person an opportunity

Corresponding Author

Dr. Kibal'chenko Irina A., Department of psychology and life safety, Federal State-Owned Educational Autonomy Establishment of Higher Education «Southern Federal University», Taganrog, Russian Federation, E-mail: kibalirina@sfedu.ru



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to choose the way of self-development and self-improvement in case of solving real situations and problems in life. The person is studied and defined as a subject of life experience (beginning with anticipation processes to self-actuating ones in particular behavioral models and actions), i.e. personal success is one of the most important predictors of the person's future. At the same time the most important factor here is the person's understanding of "own success", his/her success mental representations features and their influence on personal activity. Nowadays, the person him/herself is in need of being successful (as it provides self-confidence, self-realization, personal growth), as well as the society in general needs separate persons to be successful. All these facts show the relevance of problems connected with the success and successful personality mental representations.

Having analyzed modern researches

on the problems of “personality success” we can make several conclusions. First of all, the success is often considered as the social and psychological characteristic reflecting person's being satisfied with the process and the results of own life, being focused on success and having socially recognized achievements (Tugusheva, 2008). Secondly, it is identified by many variables (from objective and historical variables to subjective and psychological ones) including the level of personal development, social and individual identity (the system of self-perception, person's realizing the concepts of his/her opportunities and abilities) and helps person to create individual life scenarios, make professional and personal choices in accordance with peculiar life circumstances (Androsenko, 2013). Thirdly, the success has the so called “nuclear structure” consisting of such personal qualities as the ability to compare desires with the opportunities; self-efficacy; importance and value of trust; ability to empathize with surrounding people; ability to estimate and plan the efficiency of the future activity from the perspective of individual events assessment, etc. (Thompson, 2004). Fourthly, success gives an impetus to person's definite professional activity, making person pay attention to the objects important for this activity and life in general; has an influence on choosing favorable and realistic behavioral pattern and vary depending on social experience and person's reaction on social conditions. (Shkherbakova, Tamaskhanova, Klad'ko, 2015; Andrianova, Tarasova, Pecherkina, 2018). Fifthly, it is characterized by a clear semantic field including objective signs such as work, family, health, education, etc., subjective ones such as single-mindedness, sociability, will activity, etc., as well as existential signs: self - actuating, self - fulfillment, self - sufficiency, etc. (Androsenko, 2013; Nanay, 2013). Finally, the success has an impact on individuality formation in general as well as on formation of personal attitudes, self-identification, aspiration level, motivation in particular (however, a reverse influence of the abovementioned variables can be observed in a process of success notion representation system forming) (Low, Overall, Hammond, Girme, 2017; Kishtimova, 2013).

A number of researches reflect outstanding data on different types of success (educational, adaptational, sports, social, professional) correlation with such variables as motivation, intellectual and personal resources, cooperation with other people, self-control, informative activity, etc. Such authors as

Kibal'chenko I. A., Eksakusto T. V. show (on the example of entrepreneurs) that the success of the entrepreneur as a subject of professional activity depends on his/her ability to act analytically, to give an appropriate assessment to any problem and its reasons, to choose necessary actions to solve the problem; to plan activity and to develop strategies for achieving peculiar goals (Welsch, Zimmer, 2018) as well as on such personal characteristics as intellectual and intelligence development correlation with the carried-out activity.

Some researchers empirically prove that having success in educational activity depends on the high level of informative development (i.e. open informative position, cognitive interest, mental maps) (Brigley, 2018) as well as on students being highly motivated, calm and unimpulsive, being able to control and regulate themselves (coping with emotional stress). Such factors as self-motivation, academic self-efficiency, self-control and being satisfied with the training course chosen are of great value for students' orientation and being successful while studying at an educational establishment (Van Rooij, Jansen, and Vande Grift, 2018). At the same time, gifted students who study special programs (for gifted students) are characterized by specific personal and intellectual features, show high social and economic success in further life, including successful graduating from colleges and being successful in their professions (Welsch, Zimmer, 2018).

It is also noted that person's having clear intentions (ideas on simple plans implementation and particular behavior and activity necessary for that in the set conditions) leads to moderate and considerable improvements in achieving the goals that can be used for obtaining the forecasts concerning success in achieving various purposes and goals in future (Pirolli, et al, 2017). Psychological features of people have an influence on success of some special skills development (e.g. people going in for mountain skiing) and sports success in general: there is a positive correlation between young male skiers' self-efficiency and success and inverse back coupling between young female skiers' fear and high sports results (Cigrovski, Radman, Konter, 2018). Social success (inter-personal relations efficiency) is connected with such variables as: ability to distinguish and interpret poses, gestures, partner's spatial orientation, his communicative abilities, etc. (Bracci, Caramazza, Peelen, 2018). Partners' mutual understanding based on interoceptive awareness, self-concept and

perception of others is important for successful communication and interaction (Palmer, and Tsakiris, 2018).

The results of the theoretical analysis point us toward the following conclusion: there is a big range of variables correlating with "personal success". At the same time, the analysis of the existing researches on success showed that there is some dichotomy: on the one hand, a large number of factors, criteria, variables defining success, its contents and realization conditions are revealed. On the other hand, nowadays the number of researches aimed at individual resource value definition, "success" mental representation (exemplified by separate individual persons) as the necessary factor for personal achievements are not enough for making exact conclusions but some researches show direct or indirect connection of success and mental representations.

It is possible to assume that each person possesses a unique and individual complex of success mental representations. These representations set the action procedures, i.e. help to reproduce operational knowledge in personal consciousness which provides efficiency (success) in the set circumstances. In other words, success mental representations can act as the reflection of real and potential success of any person. Within this framework, the problem of studying mental representations having influence on our thinking and actions is of great importance.

The problem of mental representations has been one of the most topical for cognitive psychologists for the last decades. If summing up the psychologists' experience in mental representations studying, it should be noted that the "mental representation" is defined as some "operational form" of mental experience which can vary/be transformed in a situation changing process and a so called person's "intellectual contribution". It is also considered to be rather specific, detailed picture of the set reality.

Numerous researches show the following features of mental representations: they exist in the form of complete units and cannot be characterized by the clear invariable set boundaries (because human experience is subjective); they are verbalized by means of different verbal forms (semantic units) and are continuously reproduced structures corresponding to changes in the environment. This fact helps person to adapt to the environment by means of information control (Tarmaeva, 2010). Mental representations have a level organization; they depend on the activity pur-

poses; are the elements of the view of life and are connected with the previous experience (Tsimbalyuk, 2011). They can also be considered as a process (reflections, representations), i.e. the way of reality learning and perception as well as the result of this learning and perception (particular experience description within the world view); their structure includes associative, estimated, conceptual and figurative components (Prokhorov, Alekseeva, 2017). Mental representations are of great importance for studying those mental processes and states which are subjective (subjective experience), i.e. processes and states having no equivalents in objective material world (Prokhorov, Alekseeva, 2017). Researches based on the abovementioned ideas show that studying the processes interaction from the point of view of "ascending" and "descending" movement in hierarchical semiotics field (mental representations field) is necessary for learning process modeling and formation of person's ideas on him/herself and the world in general (Kuvich, Perlovsky, 2013; De Haan, Smit, Van der Stigchel, 2018). Such hierarchical organization of mental representations is considered in the context of psychological well-being ensuring and personal behavior correcting. It is revealed that in many cases, higher level of personal wellbeing and success is caused by high-level structures of mental representations (abstract, global, coherent) integration (Horvath, 2018).

It is also found out that in any situation of life (especially in emotionally significant ones) person makes its semantic assessment and declares peculiar attitude to it. An image of each life situation has a certain rank in subjective view of the world and is associated with certain mental states. The associative unity of mental states and situations is formed and fixed in a process of life activity. It reflects past subjective experience (Prokhorov, 2016).

So, mental representations reflect the world in all its forms and refract through identity of the subject him/herself; they become those important indicators which can predict success of the subject. At the same time, it is necessary to emphasize that the construct of success mental representations and their objective signs (semantic field, type, particularity/non-specificity of figurative schemes, modalities quantity and content, etc.) is developed insufficiently.

It is possible to assume that the success mental representations are determined by cognitive and personal features. The style of the subject (i.e. cognitive style, style of activity,

behavioral style, style of self-control, coping style) is one of the variables specifying the success mental representations (Kholodnaya, 2004; Beefink et al, 2012), etc. The researches by Gervais, J., & Cossette, P. show that it is important to create cognitive maps (ways, routes, lines of environment elements cooperation and interrelations as the instruments of knowledge management) for effective and successful interorganizational communication (ICS); these cognitive maps can be useful for the persons interested in this problem. As well, we found similarities and differences between cognitive maps of the employees' interorganizational communication success; it can be connected with their own styles of the activity organizing (Gervais, J. and Cossette, P., 2007).

Another research proves that the affective and cognitive style of mental representations provides success/efficiency of the relations in the system "Me – Another person". It is shown that the low level of success representations differentiation and integration is expressed in communicating by using simple abrupt and even affectively polarized characteristics for describing other people; mental representations are influenced by affective states, empathy and self-understanding weakness (Korshunova, 2005).

The carried-out analysis showed that the subject's mental representations are widely studied in general, whereas the success mental representations, students' psychological states and success perceptions structure are still understudied. A number of problems are found:

1) on the one hand, semantic field of the "success" concept is accurately defined, on the other hand, its cognitive structure (cognitive signs) in case of different understanding of this concept by students with different cognitive complexity is still not studied enough;

2) the structure of mental representations (its hierarchy, multidimensionality) is described, but those structural features which cause the subject's success are not defined;

3) a big range of variables defining success are found out, but connection between the success and person's intellectual resource, cognitive maturity are not studied;

4) researchers describe the influence of success on person's (as well as personal attitudes and self-actualization) formation and development in general, but the role of the success mental representations in formation of person's ideas on him/herself and the world (as a predictor of intellectual and personal development) and in knowledge process model-

ing and development is not clear.

So, mental representations – structures, relevant intellectual images, semantic units describing students' experience within the frames of their success acceptance are the subjects of our research. We are aimed at finding answers to the following questions: what features (style, structural, level, etc.) define the subject's system of the success mental representations; connection between cognitive maturity and personal success (potential and real); which structural characteristics of the success mental representations help person to move forward, have an accurate, differentiated and systematical view of the success, which ones prevent to plan the activity, to see the purposes accurately, reduce personal success and quality of life in general.

The results received will allow understanding features of the success representations, their cognitive structure, generality degree, intelligence from the point of view of students' personal experience. Studying the students' understanding of success, their potential and real opportunities is of great importance for subject's intellectual and personal resource, achievements and cognitive maturity analysis. These factors determine effective development of our society.

2. MATERIALS AND METHODS

Basic methods used in our research are as follows:

Content analysis was used for studying basic tendencies in students' "success" concept semantic content understanding.

Factor analysis was used to define the structure of the success mental representations in groups of students with different values of the success basic characteristics as well as to define style structures in groups of students with different success mental representations structures.

Kruskal-Wallis' nonparametric statistical criterion H was used to find out differences of groups in style characteristics, generality levels and experience structure types; Fisher's angular transformation helped to compare the results of previous tests according to the frequency of "success" concept cognitive content and its modalities occurrence.

T. Ehlers' questionnaire "Motivation to success" helped to study the degree of students' success achievement motivation.

Biographic questionnaire (BIV – Biographisches Inventar zur Diagnose von Ver-

haltenstorungen; Bottscher, Jager, Lischer) was used to study students' social level (Sozlag scale) which reflects their social success.

Abridged version of KSICH-B (Cognitive styles of human's personality) test was used to study person's cognitive styles.

"Success" concept drawings pictorial-verbal interpretation and analysis was used to define such success mental representations characteristics as the image generality level and descriptive schemes (experience structures) types. These characteristics include the variety of types of person's interaction with the entire world.

Four hundred twenty two students of Southern Federal University took part in the research.

The average age of the participants was 20 years old (19-23 years old), 51% of them - male and 49% - female:

1st step – 64 students took part in the "success" concept content analysis;

2nd step – 122 students took part in studying the "success" concept organizational styles;

3rd step – 128 students took part in studying structural peculiarities of the success mental representations with different style predictors;

4th step – 108 students with different success mental representations were analyzed while studying style structures.

3. RESULTS

First of all, the analysis of the "success" concept semantic structure was carried out. It was based on students' answers (concept generality and previous experience). Sixty four students participated in this research; they were given three minutes and offered to write as many adjectives corresponding to the "success" concept as possible.

In the course of the students' answers analysis a set of indices (signs) characterizing the "success" concept structure was recorded (purposeful, hardworking, ingenious, clever, exacting, family, sociable, friendly, and also cunning, rich, beautiful, risky, gusty, stylish, careless, etc.). Content analysis was used to systematize the obtained data. Deductive type of the qualitative and quantitative analysis was used as the basic method; it helps to define and analyze general tendencies in students "success" concept identification and its content understanding.

Modalities were defined from the ana-

lyzed units in the course of a categorization; these modalities stipulated the conceptual scheme of the research.

Frequency analysis of the categories occurrence (415 categories with 555 signs/indices characterizing the main signs of the "success" concept cognitive content) allows to note that the positive modalities of the concept prevail (62,65% of students). In other words, most of students associate "success" with positive results of their actions (purposeful, happy, safe, etc.). However a considerable part of them (37,35%) show negative semantic signs while analyzing the "success" concept notion (they use the following adjectives to describe success: cunning, "stopping at nothing", strange, haughty, ambitious, envious, etc.). On the one hand, these results can indicate low degree of the success image generality; on the other hand, they can be the signs of some problems students had in their previous experience. The received distribution has significant distinctions (by Fischer's angular transformation: $\phi^*_{emp} = 7.404$, $p \leq 0,01$).

The factor analysis of frequency of the "success" concept cognitive content occurrence showed that the oftener the signs occur, the poorer their variety is (overall dispersion is 74,319%). In this regard three groups of signs were defined: with the minimal, maximal and average occurrence frequency.

Maximal frequency of the signs occurrence corresponds to quantitative interval from 25 to 31. Only three signs – "clever", "sufficient", "rich" (general signs amount - 87 units) are included into this group. This group is characterized by the cause and-effect signs, reflecting modern youth ideas on success results. At the same time most of students connect the notion of success with its external attribute – material component, however, they are all sure that material success as well as the success in general is possible in case of well-developed intelligence and intellectual potential.

Average level of occurrence frequency corresponds to an interval from 6 to 20, and includes the bulk of the signs reflecting general tendencies in students' personal resources and features accompanying success recognizing (diligence, sociability, independence, responsibility, etc.).

The group with a low (minimal) occurrence frequency is characterized by the "success" concept cognitive content misunderstanding. Special attention is paid to the last point with a low occurrence frequency with specific semantic images of success: gold,

phenomenal, aristocratic, fantastic, etc. It is possible to assume that young people with these associations have a low level of the success mental representation formation, brief experience and insufficient level of cognitive complexity.

The content analysis allowed defining a group of the "success" concept signs and its component structure. The research helped us to define cognitive and semantic (these indices reflect the mechanism of the intellectual and personal resources interaction providing subjects' development and semantic orientation on success: dominating index is "happiness"), regulatory and intentional components which correspond to the structure of an intellectual and personal resource (Kibal'chenko, Eksakusto, Istratova, 2017) and reflect integration of cognitive and personal opportunities of the subject. Content analysis as well reveals emotional and estimated component of the "success" concept which is characterized by such signs as beautiful, stylish, elegant, fashionable, brilliant, attractive, fine, charismatic, good, modern, big, gold, the best, fantastic, peculiar, charming, etc. All these facts allow defining emotional and significant signs of students being included into the process of own success formation.

Those specific features of the "success" concept semantic field found during the research help us to assume that there are special styles of the organization of this concept reflecting a cognitive maturity of young people.

This assumption is based on understanding the style as the way of such semantic unit of cognitive and semantic structures as a concept and its system organization and updating. The person uses style as a complex of cognitive procedures to process the knowledge and selects corresponding semantic indices on the basis of procedural and productive understanding of the concept content. This process is connected with the strategy of information processing as well as with its assessment. The concept organization style is used in conditions of the students valuable and semantic orientation system, their cognitive maturity; in case of peculiar concept cognitive structure semantic signs (in this case, "success"). These facts allow defining certain technologies of its organization. Style (its phenomenon is characterized by duality) is a backbone factor of the process mentioned above (Tolochek, 2013). The concept organization style is defined as the way of the concept internal arrangement, coherence of its differentiated signs; this style is stipulated by the subject's cognitive matu-

rity and his/her ideas on the concept structure, its cognitive and semantic content.

So, the following step of the empirical research was studying the "success" concept organization styles and their distribution in the groups of students (122 persons took part).

The following "success" concept organization styles were specified as a result of quadri classification: "Accurate fast", "Accurate slow", "Inaccurate fast", "Inaccurate slow". As a result, two intervals of the signs which are hypothetically built in quadripolar analysis were received:

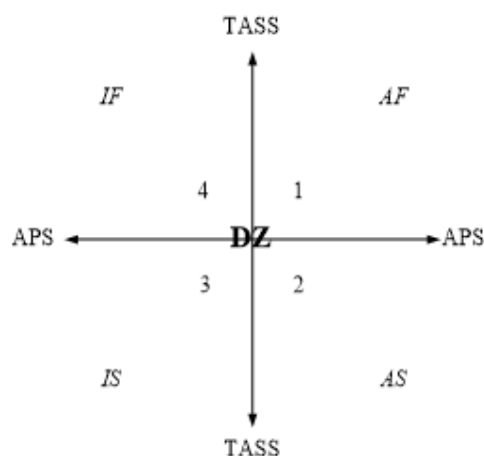
1) total amount of the "success" concept semantic signs (TASS), offered by the respondents in their answers (quantitative interval of signs – from 2 to 19);

2) amount of positive signs (APS), reflecting the results of the subjects' purposeful efforts in case of playing leading role, being socially recognized and having positive personal activity assessment (quantitative interval of signs – from 0 to 10).

These signs are considered as quadri classification axes: axis 1 – TASS and axis 2 – APS. Proceeding from results we determined the defined zero (the point of axes intersection – "10" by axis 1, "5" on axis 2) and the "success" concept semantic signs and their styles (Picture 1).

Schematic symbols on Pic. 1:

- DZ-defined zero;
- TASS- total amount of the "success" concept semantic signs;
- APS- amount of positive signs;



Picture 1. Model of the "success" concept cognitive content quadri classification

In our opinion the marked-out styles will be coordinated with the known cognitive styles by such criteria as quantity, quality and time; this fact is theoretically determined as follows:

1. Accurate Fast (AF) style. Students pass the signs accurately and very fast. i.e., the students offer many signs which reflect positive results of their purposeful efforts in success achievement, as well as their social recognition and positive external assessment of their activity;

2. Accurate Slow (AS) style. Students are accurate but slow in expressing the signs of the concept. The students offer few signs of success, but these signs are essential for the "success" concept;

3. Inaccurate Slow (IS) style. Students offer few signs, indirectly related to the "success" concept cognitive content;

4. Inaccurate Fast (IF) style. Students offer many signs of the concept; however they do not reflect positive results of their purposeful efforts in success achievement, social recognition and positive external assessment of their activity.

Theoretical and empirical results show that the students' personal characteristics and cognitive styles structures are the basic ones for determinant structures of the success mental representations. That is why the third step of our research is aimed at studying style structures of students with different success mental representations.

All the students were differentiated in accordance with their success mental representations maturity; 128 students took part in this step of the research and finally three groups of them were identified: students with poorly developed mental representations (low level: 1st group, total number of points on criteria – 3-4); those whose mental representations are developed enough but are not perfect (average level: 2nd group – 5-6 points); the students whose success mental representations are well-developed (high level: 3rd group – 7-9 points).

The first group of students (22 persons) is characterized by specific associative representations with low generality degree (according to Kruskal-Wallis' nonparametric statistical criterion H; for $\text{hemp.} = 58.391, p \leq 0,01$) as well as by figurative type of experience structure (identification of familiar objects and events) ($\text{hemp.} = 47.975, p \leq 0,01$), i.e. they use the following adjectives to describe "success": "family", "wealth", "money", "car", "house", "career". The operational type of experience structure prevails in the second group (87 students); it is characterized by persons being constantly engaged in external world processes ($\text{hemp.} = 47.975, p \leq 0,01$), having subject and structural images (specific sym-

bolic and detailed description of success with the elements of compilation: $\text{hemp.} = 58.391, p \leq 0,01$). The students in this group make images showing progress in cause-and-effect chains: schemes, schedules, achievement ladders (figurative models and schemes); they reflect tendency to planning, actions premeditation while goals achieving, solving various (intellectual and social) tasks. High degree of the "success" notion generality is characteristic of the third group (19 students) ($\text{hemp.} = 58.391, p \leq 0,01$): they express their feelings emotionally and in a figurative way (by drawing burning stars, fireworks, coffers with existential values). These students described rules, strategies of behavior necessary for life success achievement in different ways, paying attention to such concepts as "liberty of choice", "cronies/friends"; "spiritual, professional and personal development", etc. Positive results on the experience structure type values ($\text{hemp.} = 47.975, p \leq 0,01$) are reflected in prevalence of the operating structures (they are expressed in plans, intentions, strategies of success achieving).

Each person understands and realizes "personal success" in a different way because of the following styles peculiarities: cognitive style, activity and behavioral styles, studied on a case-by-case basis as well as on integrated level. Statistical analysis showed us significant differences between three groups on the following style characteristics: field independence ($\text{hemp.} = 19.23, p \leq 0,01$); abstract conceptualization ($\text{hemp.} = 10.58, p \leq 0,05$); self-assessment ($\text{hemp.} = 7.08, p \leq 0,01$); responsibility acceptance ($\text{hemp.} = 6.37, p \leq 0,01$).

All these variables describe mental representations specificities and their interrelations; that is why it is important to make factor analysis to reveal the success mental representations structure. The list of signs describing success mental representations was filled up with the results of success achievement motivation during interpersonal communication (additional variables correlating with success mental representations by the results of theoretical researches).

Three structures differ widely in qualitative and quantitative characteristics were found during steps of factorization and rotation (Table 1, 2, 3).

Table 1. Components of the success mental representations factor structures in group 1

Descriptive characteristics	1	2	3
1. Generalization level	-,921	,103	-,042
2. Experience structures type	,030	,030	,974
3. Achievement motivation	,431	,431	,139
4. Social status	,518	,518	-,202
5. "Success" notion signs	,103	-,921	-,042
Total dispersion (%)	26,27	52,54	72,771

Table 2. Components of the success mental representations factor structures in group 2

Descriptive characteristics	1	2	3
1. Generalization level	,996	-,055	-,047
2. Experience structures type	-,029	,892	,159
3. Achievement motivation	,122	-,610	,573
4. Social status	-,117	,132	,887
5. "Success" notion signs	,996	-,055	-,047
Total dispersion (%)	40,28	64,11	87,025

Table 3. Components of the success mental representations factor structures in group 3

Descriptive characteristics	1	2
1. Generalization level	,928	,301
2. Experience structures type	-,137	-,760
3. Achievement motivation	,859	-,253
4. Social status	,024	,797
5. "Success" notion signs	,928	,301
Total dispersion (%)	49,57	78,726

In general, the better mental representations are formed, the higher the factor structures are developed: interaction stability increases (according to 1-1-2 variables in the last factor); degree of structure integration

grows (quantity of factors: 3-3-2); variables interconnection becomes stable (1-0-0 lost connections); the quantity of factors with contradictory interrelations decreases (2-1-1).

The group with low indices of mental representations formation is characterized by prevailing of three factors (total dispersion - 72,771%). This structure is imperfect and incomplete because such characteristic as "achievement motivation" is lost and all the indices are inconsistent and discrepant. This group can be qualified as "Cognitively simple with poor understanding of success".

The group with average values of the success mental representations formation the structure includes three factors (total dispersion - 87,025%). The factor structure in this group is characterized by completeness, coherence, but it can also be called instable (the third factor includes only one variable). This group can be called "Cognitively mature, making sequential actions to achieve success".

The third group with high rates of the success mental representations formation the factor structure can be characterized as full, steady and coordinated. It includes two factors explaining 78,726% dispersion. This group can be defined as "Cognitively complex gunning for success".

We should pay attention to the fact that the participants' mental representations formation levels were distributed nonuniformly as a result of the research: low indices (17%), average ones (68%) and high ones (15%).

The first group is characterized by cognitive simplicity of the success mental representations; this fact is determined by emotional, cognitive and behavioral "superficiality"; i.e. the participants of this group (compulsive personalities) do not tend to analyze the situation, check behavioral strategies, solve the problems, they usually make standard decisions depending on the opinion and authority of other people. Mental representations factor structures and style determinants of these students are incomplete; their indices are contradictory and uncoordinated.

The students from the second group are characterized by cognitive maturity; they are focused on positive results. All the actions are carefully thought over, planned, the goals are to be achieved; these facts help to solve cognitive and social problems and meet challenges in a step-by-step way, they also make person successful. Factor structure of success mental representations in this group is characterized by completeness, coherence, but low stability. At the same time, style determinants factor

structure is incomplete, unstable and contradictory.

Representatives of the third group are characterized by the well-developed intellectual potential; their "success" cognitive schemes (emotional and sensual orientation, prevalence of the experience structures and existential stipulation of the "success" notion) are complex. At the same time, these students are active enough in goals achieving, use constructive strategies to solve cognitive and social tasks. Mental representations factor structures and style determinants in this group are complete, coordinated.

The fourth investigation step is aimed at analyzing such variable as the success achievement motivation. It was theoretically revealed that the success motivation is connected with a set of variables directly or indirectly defining personal success. The subjects focused on success (with average or high success achievement motivation) bear the marks of cognitive maturity, developed conceptual, representative and style abilities. We are able to assume that they have special argument-predictive structure of the "success" concept representations, peculiar cognitive models of success and experience (on the basis of which the success is formed). Using the empirical method (at the third investigation step) helped us to reveal that the worse the mental representations are formed the lower the success achievement motivation is; that is why we have to check the connection of mental representations and success achievement motivation. Success mental representation is an information complex containing objective and subjective determinants of success and its achievement. Thus, this assumption became the basis for studying success mental representations: 108 students with different success achievement motivation (SAM) took part on this step of the research.

The received distribution: 56 students (52%) – average and average with a tendency to low success achievement motivation; 36 students (33%) – reasonably high motivation; 16 students (15%) – unreasonably high motivation showed that most of students entering universities (as highly intellectual subjects) are characterized by high success achievement motivation, because higher educational establishments are considered to be one of important stages of social status and social success formation. Lots of students have unreasonably high success achievement motivation; this personal characteristic cannot be called positive.

"Success" concept drawings pictorial-

verbal interpretation and comparative analysis in groups with different levels of success achievement motivation showed that the success high generality degree is characteristic of the students with reasonably high motivation (16,2% of respondents); neither the students with average level of motivation (10,1%) nor the students with unreasonably high SAM (0%) can be characterized by the success high generality degree. The students from this group expressed incremental advance based on cause-and-effect factors: schemes, schedules, achievement ladders (figurative models and schemes). Representatives of this group express their feelings emotionally and in a figurative way: by drawing burning stars, fireworks, coffers with existential values. This is characteristic of people with well-formed mental representations. The students with unreasonably high SAM (50% of respondents) are characterized by low generality level of the "success" notion, whereas the students with average (17,3%) and reasonably high (16,2%) success achievement motivation have a normal generality level of it. ($\varphi^*_{emp}=2.459$; $p \leq 0,01$).

The research is also aimed at studying the types of figurative schemes (experience structures). We found out differences in these types indices which are determined by persons' continuous and varied interaction with the world around: high values are characteristic of students with reasonably high and average SAM (11,1% and 10,7% of respondents). Significant differences between groups are received on operational structure types reflecting the rules of information transforming: with average (53,6%) SAM level and with the reasonably high one (38,9%) ($\varphi^*_{emp}=3.245$; $p \leq 0,01$); with the average level and with unreasonably high level of motivation (12,5%) ($\varphi^*_{emp}=2.077$; $p \leq 0,05$). The received features are complemented with significant differences in figurative schemes domination (identification of familiar objects and events) in the groups of students mentioned above: the group of students with unreasonably high motivation (87,5%); the students with reasonably high motivation (50%) ($\varphi^*_{emp}=2.822$; $p \leq 0,01$), and the students with the average level (35,7%) of SAM ($\varphi^*_{emp}=2.822$; $p \leq 0,01$).

All the students had to make a visual image of success and describe it verbally; but the ways of their describing rules, strategies of behavior necessary for life success achievement were different. The students with reasonably high motivation paid attention to such existential values as "liberty of choice",

“cronies/friends”; “spiritual, professional and personal development”, “health”, etc. The students with unreasonably high success achievement motivation cannot be characterized by the high generality of the success “notion” or experience structure. Associative images with figurative type of experience structure (identification of familiar objects and events) prevail in this group. Such components of success as “family”, “wealth”, “money”, “car”, “house”, and “career” are considered by the students in this group as the basic ones. It means that these subjects' mental representations are poorly developed (see the results of the third step of the research). These respondents perceive success as the material wealth which cannot be reached by sequential activities and appears “suddenly and on short notice”. These results let us assume that the unreasonably high level of motivation is caused by superficial and simple cognitive estimation of conditions and circumstances. Such students have no strategies in their lives, do not plan their activities, they act impulsively, can be unpredictable and focused on external attributes of success that is possibly caused by cognitive simplicity of their ideas on “own success”.

The analysis of the “success” concept cognitive content (modalities and signs of concept) showed the following results:

Students with different success achievement motivation have no significant discrepancy in quality of modalities while describing the “success” concept (at about 8 modalities in general; 7,7; 8,7 and 8,5 modalities in groups). At the same time 68% of students with reasonably high SAM and 39,3% of students with average SAM level use constructive and essential signs of the concept reflecting its integrity, improving its contents ($\phi^*_{emp.} = 2.603$; $p \leq 0,01$). If speaking about the students with unreasonably high SAM level (25% of them) as well as the students with reasonably high SAM (10% of them), they can be characterized by using superficial modalities (e.g. good/bad, rich/poor, simple/difficult, etc.) describing the “success” concept signs ($\phi^*_{emp.} = 1.723$; $p \leq 0,05$).

4. DISCUSSIONS

Quadri classification of the “success” concept cognitive and semantic signs helped to find out organization style of this concept, depending on the speed and accuracy of these signs selection, their structuring and integration. The higher the level of the students' men-

tal representations maturity is, the more complete, integral and stable these representations are. The level of the students' style cognitive and personal characteristics structuredness is determinantal for the success mental representations structural organization and vice versa. These facts correspond to and elaborate such cognitive styles available data as:

- cognitive styles unify the subject's cognitive and emotional peculiarities and style systems serving as the integrators of cognitive and affective spheres of personality;

- cognitive styles are the so called “metacognitive abilities”, objectifying mental representations of the events;

- cognitive styles are the characteristics determining potential of person's estimates, judgments, positions and acts objectivation as well as social behavior features (Volkova, Gu-sev, 2016).

Consequently, reasonably high motivation of success achievement means low frequency of superficial modalities occurrence in a “success” concept description. Such results allows speaking about significantly high cognitive maturity of the students striving for success, highly motivated on achievements, about their highly developed consciousness and being focused on gaining certain positive results and success in their lives. These results also prove the obtained data on the fact that at people with reasonably high success achievement motivation are characterized by productive and creative thinking (Fan, Wolters, 2014; Vongkulluksn et al, 2018). The students with unreasonably high motivation of success achievement use lots of categories to describe the “success” concept, but these categories are frequently often destructive for the notion integrity. i.e., these students are characterized by cognitive simplicity (estimate concepts of superficial categories as “good/bad”, “pleasant/unpleasant”, “yes/no”, etc.) and their intellectual immaturity (Fan, Wolters, 2014; Vongkulluksn et al, 2018). The revealed tendency to use superficial modalities (characteristic of students with unreasonably high motivation of success achievement) gives the grounds to assume that the unreasonably high level of motivation evolves from their superficial and simple cognitive estimation of all conditions and circumstances.

The received results prove that the more complete and integral the success cognitive image is, the more mature and integrated the students' personal and intellectual resources and experience are. The students having complete and integral understanding of the “suc-

cess" concept seek for self-development, realization of the cognitive, intellectual, personal opportunities, solving various professional and life tasks and problems, they execute their functions and obligations productively and successfully. These results let us draw a parallel between our research and a well-known five-factor model of leadership and assume that the most part of students realizes connection of the success with their own experience, personal resource and own contribution as well as of subjective and objective circumstances in their lives.

5. CONCLUSIONS

The received results of a research allow making the following conclusions:

Students are characterized by possessing the complexes of success mental representations reflecting the world in all its forms and refracting through the identity of the subject; these representations complexes are connected with aspirations and achievements, intellectual and personal resources; they set the procedures of personal actions, reflect and help to predict person's real and potential success.

As a result, the content analysis helped us to define a model of the "success" concept signs quadri classification. The peculiarities of this classification point to the fact that the students can be characterized by different styles of the "success" concept semantic signs organization.

Studying the aspects of the students' (the students are considered as the successful members of the modern society) intellectual and personal resources differentiation and integration offers new prospects in studying young people whose intellectual and personal features can be pegged as the explanatory principle of the subject's self-improvement and success in various spheres of activity (professional, interpersonal, personal growth, etc.).

People with high success achievement motivation are inclined to plan their future step by step and carefully; they realize and estimate their resources; make correct predictions, solve any problems and feel more satisfied, than people whose activity is aimed at avoiding failure or those whose success achievement motivation is on unreasonably high level. The subjects focused on success show the signs of conceptual and representative abilities. They are characterized by optimal level of aspirations in achieving the desirable quality of life; their "success" concept

representations structure is peculiar and specific.

The students' (with different success achievement motivation) own success cognitive vision peculiarities depend on several moments. First of all, these peculiarities depend on success figurative schemes type (operational/figurative). Operational type of success figurative schemes reflects the rules of the information transforming; this type is a sign of the well-developed and mature understanding of success and is a characteristic of the students with reasonably high and average motivation of success achievement. Whereas figurative type (i.e. identification of familiar objects and events) is a sign of poorly developed understanding of success; it is characteristic of the students with unreasonably high level of success achievement motivation. These students have problems with the "success" notion understanding and generalizing. Secondly, the students' own success vision peculiarities are shown in features of the modalities used for representations creating. Thus the students with reasonably high success motivation do not use superficial modalities in their mental representations of success; they express their understanding of the "success" notion using its essential and integral signs; this fact let us consider these students as cognitively mature persons.

Thus, the more complete, complex and mature the cognitive image of success is, the more developed and integrated subject's experience, intellectual and personal resources are; in this case the students are highly motivated for self-development, implementing their personal cognitive and intellectual opportunities, reaching the success in their lives.

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Conflict of interests

The authors declare no conflict of interest.

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THE IMAGE OF SOCIALLY ACTIVE INDIVIDUAL IN THE REPRESENTATIONS OF STUDENT YOUTH

Dr. Rail M. Shamionov, Faculty of Psychological, Pedagogical and Special Education, Saratov State University, Saratov, Russia, E-mail: shamionov@info.sgu.ru

Dr. Anton V. Grigoryev, Faculty of Psychological, Pedagogical and Special Education, Saratov State University, Saratov, Russia, E-mail: muadibone@gmail.com

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ABSTRACT

The study of students' representations of a socially active individual is one of the major tasks of psychology of education. The purpose of the study is to carry out analysis of characteristics of an image of a socially active individual in the representations of student youth and to correlate them with self-assessment of social activity and assessment of real social activity. Students aged 17-23 years ($n=251$) took part in the study $M=20.11$, $SD=1.2$ (41% men). We used the polling method with the scales developed by the authors of the present study in order to identify self-assessment of social activity, to evaluate real activity; and the associative experiment method. In the study we analysed qualitative and quantitative characteristics of the image of a socially-active individual in the representations of university students. We have established major meaningful characteristics of representations (personal qualities, self-improvement and personal transformation, states, representation in the group, process and activity-related characteristics). Conclusion has been made about the connection between the intensity of students' social activity and cognitive complexity of the image of a socially active individual and the content of subjective (initiative, confidence) and psychodynamic (vigour) categories in it.

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1. INTRODUCTION

The study of an individual's representations regarding certain life events and their connection with the implemented behavior is an important task of cognitive psychology. On the one hand, representations play an essential role in the perception of objects of the surrounding world. On the other hand, representations are the basis of implemented behavior in relation to perception objects. Researchers (Levine, Leslie, Mikhail, 2018; Samoylenko, Bogdanova, et.al. 2017) point out that, since representations accumulate attributes of various single images, thanks to mental processing of information, they carry a lot of generalized and synthesized elements of the object.

Corresponding Author

Dr. Rail M. Shamionov, Faculty of Psychological, Pedagogical and Special Education, Saratov State University, Russia, E-mail: shamionov@info.sgu.ru



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J. F. Richard points out that representations include the entire set of elements of the perceived/represented situation (Richard, 1998). That is why despite the more vague nature, the secondary image (representation) contains considerable information that influences various processes - decision-making, their implementation, etc. Finally, representations participate in understanding and interpretation of other people's behavior (Petrenko, 2016). That is why analysis of images of certain phenomena of the social environment is necessary from the point of view of predicting both cognitive and behavioral consequences in relation to these phenomena.

Cognitive psychology has been interested in various characteristics of representations for a long time (Piaget, 2004; Lewine, 2000). Despite the differences in theoretical positions, researchers adhered to the notion that representations are associated with reality. At the same time, as a result of a number of studies, it was found out that the connection between reality and representation does not form an isomorphism (Eysenk, 2015).

A number of researchers (Velichkovsky, 2017; Sergienko, 2017; Petrenko, 2016) study

representations as a result of psychological reflection of reality in the form of images, symbols, subjective description of experience, subjective semantics, etc.

However, as R. Jackendoff (2016; 2017) points out, all representations form the level of mental representations, which is a conceptual structure where information obtained through different channels (for example, sensory, motor, etc.) can be compared with verbal information. In other words, a sign, meaning contained in the verbal expression of a certain reality, corresponds to mental representation. That is why researchers, as a rule, use semantic features as a unit for describing mental representation of an object.

As applied to social phenomena, representations accumulate not only concrete reality and perception experience, but also public opinions (Markova, 2016; Batel and Castro, 2018). Transformation of the “imaginary” into the “real” is a complex process involving both cognitive mechanisms and social communication (Moscovici, 2000). Meanwhile, representations of social reality include more complex objects as well, which are interactions of an individual with others. Personal characteristics and behavior are a relatively complex object of representation. Particularly, personality of a socially-active individual is this kind of object. Represented cognitive characteristics in this case may relate to various manifestations of personality and human behavior. At the same time, they reflect the attitude towards this personality, which can be the basis for their own behavior. Modern studies of student representations cover various phenomena starting from general cognitive (Pilipenko, 2017) and up to basic emotions (Arapova, Dolgova, 2017), happiness under various conditions of student socialization (Zhdanova, Pecherikina, Strokanov, 2017). The studies of human action (Brown et al., 2012) and the phenomenon of social activity are mostly related to the analysis of characteristics and determinants of the activity itself (mostly volunteer and civil activity) and, as a rule, presuppose group participation analysis (Shamionov, 2014; 2017). At the same time, representation of an individual as a subject of social activity (diverse and multidirectional subject in case of students) has not been studied sufficiently. Such a representation is important both for realization of the student’s own personal activity and for his/her social identification.

Thus, the study of ideas regarding a socially active person will help to understand what specific cognitive elements are embed-

ded in his image among young people and to what extent they determine social activity of young people. Therefore, the purpose of this study is to study characteristics of the image of a socially active person in representations of the student youth and correlate them with self-assessment of social activity and assessment of real social activity.

2. MATERIALS AND METHODS

The sample consisted of 251 students receiving education in Saratov region, Russia, age $M=20.11$ (17 to 23 years) $SD=1.2$ (41% men). The sample is formed using the simple randomized selection method. It should be noted that the vast majority (more than 90%) of young people aged 17 to 23 years are students of universities and colleges (Federal, 2018).

Associative experiment was used to analyze characteristics of representations. As an incentive, the notion of “a socially active individual” was proposed. Processing of the obtained associations assumed standard grouping and categorization procedures. Semantic proximity was calculated by the number of matching answers and similarity of associations used in the course of the experiment.

To identify the level of self-esteem of activity and assess real activity, we used scales with the dimension of 10 points (1 point means that a trait is not expressed, 10 points mean that a trait is expressed to the highest degree).

Indicators of social activity preferences and general self-assessment of social activity were identified using specially designed scales defined on the basis of a pilot research project. The pilot study involved 80 students from Saratov State University aged 18 to 23 years. They were asked to identify social activity and define its main characteristics and directions. The authors developed 11 scales of social activity based on the findings. Then, 5 qualified psychology experts evaluated the scales for their compliance with the identified forms of social activity. The most frequently mentioned areas of social activity were selected. Among them were: recreational and cognitive social activity (group tourism), self-development activity (trainings, etc.), educational and developmental activity (participation in educational initiatives), hobby and communication-related social activity (related to friends and acquaintances), Internet and network-related activity, socio-political activity, culture and mass social activity, social activity in the spiritual and

religious sphere, informal social activity in the collective, creative social activity (art studios, etc.), volunteer social activity (volunteering), general (generalized) subjective assessment of social activity. All scales have undergone reliability check: α Cronbach = 0.68-0.69; χ^2 Friedman = 964.1, with $p < 0.001$.

The socio-demographic parameters were singled out using the questionnaire compiled by the authors of this article.

Data analysis. All statistical analyses were conducted with the aid of the Statistical Package for the Social Sciences (SPSS 22.0).

3. RESULTS

Being manifested in various spheres, social activity has various qualitative characteristics. These characteristics attract the subject to its implementation, orient him/her specifically towards this type of social activity, contribute to person's self-realization. Constancy of personal interest and desire to implement this type of activity depend on how accurately and clearly an individual represents the specifics of a particular type of social activity. In this sense, attitude to activity is primarily manifested in the ideas about it and its emotional and value significance. Let us turn to content analysis of ideas about personality of a socially active person.

According to data obtained in the associative experiment, on average the share of substantial characteristics about a socially active person in the representations of the test subjects is 74% of the total number of the listed traits, the share of emotional characteristics is 16%. This means that substantial representations, that reflect a non-evaluative and non-emotional attitude, prevail. At the same time, some substantial characteristics are the basis of emotional and evaluative attitudes. Thus, substantial characteristic "active" is specified in the evaluation characteristic "very active", substantial characteristic "participation in events" is combined with emotional characteristic "participates in everything with interest".

Making up an image of an active person, the respondents on average use 2,25 traits (from 1 to 4 characteristics), which testifies to lesser cognitive complexity of an image.

The method of grouping characteristics of young people's ideas about a socially active person allowed them to be grouped into meaningful groups and to clarify frequency distribution of concepts in various groups. Identified meaningful groups and their fre-

quency distribution are presented in Table 1.

As we can see from data presented in the table, the largest frequency distribution belongs to ideas about personal characteristics of a socially active person. In representations of the youth a socially-active individual is characterized by vigour (0.083), purposefulness (0.053), cheerfulness (0.043), responsibility (0.04), activeness (0.04), independence (0.03), diverse interests (0.03), high level of intellect (0.007), spontaneity (0,007). In brackets you can find indications of frequency distribution of a characteristic as a measure of ratio of the number of names of this characteristic to the total number of all characteristics in the sample. They show that an active person in the representations of young people possesses, above all, subjective qualities that contribute to strength, targeted orientation of social activity, its relative independence, both in terms of manifestation and responsibility for its results. The image of a socially active person in the representations of young men and women is also associated with emotional positive background, cheerfulness and spontaneity.

Table 1. Frequency distribution of meaning groups of representations regarding a socially-active individual

Meaning Groups	Frequency
Personal qualities	0.31
Self-improvement and transformations	0.23
States	0.20
Presence in the group	0.14
Process and activity-related characteristics	0.12
Total: 453	

According to the number of traits in the representations of the youth the second most important meaning group is the one related to dynamics and changes in personality and environment (see Table). This indicates that young people perceive social activity as a means of self-change and impact on the environment, including social environment. Such traits as "tries to be useful in everything" (0.08), "self-improvement" (0.043), "interest in changes" (0.03), "development" (0.023), "improves living conditions" (0.01) are included into this meaning group. The presence of signs of

change in the image of a socially active person is associated with young people's awareness about the role of social activity in active transformations of the surrounding world and their personality, although, in general, their responses show undifferentiated, overly generalized signs of changes.

The third largest frequency distribution group is the group regarding representations of the state of a socially-active person. Characterizing a socially active person through states, research participants do not focus on the external manifestations of activity, but rather on the internal signs that contribute to activity. In this case, internal states of a person, obviously, are seen as the conditions for individual activity implementation. This meaning group consists of the following traits: "need for movement" (0.04), "often experiences the state of success" (0.027), "healthy" (0.02), "confident" (0.011). From the point of view of internal states, a socially active person appears to respondents as an individual with a high level of need for their own dynamics, successful and, as a result, self-confident, whose somatic and psychological health allows to satisfy this need.

The use of the notion of a "socially active person" as a stimulus in an associative experiment implies the disclosure of this concept's content through traits associated with the inclusion of an individual into social environment. However, the frequency of traits characterizing a person as a group member is low in the representations of young people. Perhaps this is happening due to lack of differentiation between general and social activity of a person. This may also indicate the leading role of individual's social activity in all forms of social and individual functioning, since individual forms of personal activity in any case correlate with socially accepted norms and values. Such traits as "sociable" (0.07), "leader" (0.043), "participates in public events" (0.027), "professional" (0.017), "participates in the lives of other people" (0.007), "a great reward for the state" (0.007) can be singled out in this meaningful group. It should be noted that only a group of professionals has clear definition of a social group in the representations about a socially active person among the respondents, for some young people they are associated with awareness of the social value of a socially active person, although this is not often manifested.

Process and action related characteristics, i.e. "takes the initiative" (0.027), "does something useful" (0.027), "workaholic" (0.017), "expresses his life position" (0.013),

"strives to do something new" (0.007), "lives a full life" (0.007) have a relatively low frequency distribution in the representations of a socially-active person. Despite the low frequency of these traits, they are quite clear and define actions that are external markers of social activity. Initiation of actions, both their own and those of other people, striving for a socially useful result, hard work and creativity are combined with the courage to express their life position and the feeling of fullness of life with events and impressions in the content of this meaning group.

Thus, the image of a socially active person in young people's view is primarily associated with personal and subjective qualities and traits of self-changes and changes in the surrounding reality. In their representations young people do not clearly associate social activity with a person entering a certain social group, which indicates the refusal to associate social activity with any (official) political or civic groups. The actions of a socially active person are quite clearly represented, but the use of these traits is limited. When forming image of an active person in his/her mind, an individual relates this image to both generally accepted social norms and assessments, rather than to their own personality.

As a result of correlation analysis of generalized characteristics of realized social activity and cognitive complexity of the image, we managed to identify the connection ($r = 0.233$, $p < 0.001$), indicating the congruence of these variables. It should be noted that as a result of the ANOVA procedure, it was possible to reveal that real social activity is significantly better expressed in cases when the image of a socially active person contains subjective and energy-related categories, such as initiative ($F = 9.9$, $p < 0.001$), confidence ($F = 4.08$, $p < 0.05$) and vigour ($F = 4.2$, $p < 0.05$), and its self-assessment is expressed through the image of determination category ($F = 4.1$, $p < 0.05$).

4. DISCUSSIONS

Summarizing the above stated, it can be noted that the category of activity has differentiated representation in the images of a socially active person. In particular, these are personal characteristics that reflect psychodynamics and subjective characteristics, as well as characteristics that reflect the dynamics and changes of personality and environment, as well as the state of a socially active person.

The study shows that the category of activity in students' representations is transformed in various meaningful environments through the prism of either current personal activity or the perspective one. It should be noted that in representations of a socially-active person, an indirect relation to it is expressed using evaluative judgments. In addition, a socially active person in student representations is characterized by the category of change. Perhaps this is the most important moment for educational practice in this study, since the interpretation of a socially active person's behavior as changing and contributing to changes in the social environment is an important achievement in the individual's socialization. This interpretation allows you to use this image as a pattern of one's own behavior, aimed at the social environment and expectations from others. To some extent, this is consistent with studies that show that conscious perception of the world is mediated by mental models of the events that it constructs (Gruter et al, 2018).

An important result is the establishment of connection between the level of cognitive complexity of a socially active person's image and the assessment of social activity of the test subject. This suggests that the level of cognitive regulation of social activity depends on the size of the semantic environment in relation to this phenomenon. This data is consistent with studies of adaptation readiness, which shows that, depending on the size of the semantic environment and, accordingly, the areas of adaptation that a student thinks of, different options are possible for both adaptation and readiness for it (Shamionov, 2017; Grigoryeva, 2018).

5. CONCLUSIONS

The study of characteristics of a socially active person's image in student representations made it possible to reveal that the image of a socially active person among students is primarily connected with personal and subjective qualities and traits of self-changes and changes in the surrounding reality. The actions of a socially active person are quite clearly revealed in the representations, but the use of these traits is limited. Social activity in the representations of young people is not associated with a person's entry into a certain (official) social group.

The overwhelming majority of categories of student representations belong to the content and meaning characteristics; emo-

tional and evaluative characteristics make up a quarter of the entire set of selected categories. Meaningful categories of innovation, social success and positive development prevail in the structure of the cognitive component of students' attitude to social activity.

The implemented social activity of students is associated with cognitive complexity of the image of a socially active person and the content of subjective (initiative, confidence) and psychodynamic (vigour) categories in it.

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Conflict of interests

The authors declare no conflict of interest.

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THINKING STYLES AND COMPUTER ENGINEERING TRAINING: AN EMPIRICAL STUDY

Dr. Jaime Huincahue, Vicerrectoría de Investigación y Postgrado, Universidad Católica del Maule, Chile

E-mail: jhuincahue@ucm.cl

MSc. Claudio Gaete-Peralta, Departamento de Matemáticas y Física, Universidad Bernardo O'Higgins, Chile.

E-mail: claudio.gaete@ubo.cl

Eng. Viviana Garrido Véliz, Vicerrectoría de Investigación y Postgrado, Universidad Católica del Maule, Chile

E-mail: vgarrido@ucm.cl

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ABSTRACT

This study shows the qualitative construction of a Referential Cognitive Graduate Profile (RCGP) for the Computer Engineering program of the University of Bernardo O'Higgins (UBO) in Chile, based on the theory of Mental Self-Governance and by using three data-gathering methods: document analysis, interviews, and questionnaires, reflecting the professional competencies expected by the end of the training, set forth by both the institution and program management. The proposed model allows to contrast the different thinking styles (TSs) found with the ones preferred by students in different levels of formation independently. With this purpose in mind, by using a quantitative methodology, 88% of male students in the program completed the questionnaires to determine these preferences, enabling us to perform a correspondence analysis through Fisher's exact test. The RCGP results show evident preference for the legislative, executive, hierarchical, and external styles of thinking and clear differences between the preferences of students and of the RCGP. Finally, we discuss about various ways to create new means to strengthen and upgrade both the program's graduate profile and the RCGP with the purpose of benefitting the formation of Computer Engineers and the future of the RCGP model.

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1. INTRODUCTION

Among the many concerns for improving the training processes in undergraduate programs in Chile, there is a strong and ongoing interest that universities share, which is getting to know their students, whether it is on a socio-economic, cultural and/or cognitive level, so that said processes can be visualized and improved upon for the benefit of these students-bearing in mind that, for many of them, the transition from secondary to higher education is a turning point (Donoso, Donoso and Arias, 2018). Furthermore, higher education

institutions are making efforts to reduce desertion rates in every stage of their undergraduate programs, a situation that could be addressed by continuously searching for the enhancement of teaching practices until a permanent upgrade for their study programs is achieved (Cortés, Arellano and Vázquez, 2016).

However, there are other matters as well that higher education institutions want to resolve. In Chile, every university program reflects a vision of the wanted professional, which is described-explicitly-in the learning outcomes and/or the desired professional competencies for graduates; this is known as a graduate profile, and it is what every higher education institution aims to reach. Nevertheless, achieving such goal is a rather complex task which, at the same time, can be approached from multiple perspectives. One such perspective is cognition, from where one can study and learn about the preferences in methods used to carry out different tasks required for specific professions. For instance, (García Ahumada, 2005, 194-195) realized that these method preferences needed in a future profes-

Corresponding Author

MSc. Claudio Gaete-Peralta, Departamento de Matemáticas y Física, Universidad Bernardo O'Higgins, Chile.

E-mail: claudio.gaete@ubo.cl



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sional who graduates in medicine are related to the analysis and organization of information, involving an integral view of problems, interaction with others and the search for new ways to heal the patients' ailments.

In the present case, this investigation will be focusing on the Computer Engineering program of the University of Bernardo O'Higgins (UBO), where, from a cognitive point of view, we will seek to recognize which are the aforementioned preferences, which will be described in this investigation based on [Sternberg's thinking styles \(1997\)](#). These styles vary and evolve through time and can be taught and strengthened ([Sternberg, 1999, p. 90](#)). In order to fully understand how to teach and strengthen said styles, it is important to know, also, which of these are present in the Computer Engineering students of the UBO for us to be able to compare between the styles that the institute wishes to promote and the styles that it actually promotes. This way, the stated institution will count with a reference that will allow them to make - if needed - the corresponding modifications to produce a variation and/or an evolution of the TSs in accordance with its requirements. For that reason, one of the questions that lead this investigation is what are the similarities and differences between the TSs recognized in the students of Computer Engineering of the UBO and the ones recognized in a reference profile of a graduate from said study program?

To answer the previous question, it is necessary to address two issues before: firstly, we need to deepen our understanding of what is actually a TS, understood from the Mental Self-Government Theory, which will be described below; and, secondly, to discuss the general and specific objectives of this investigation, which will be done in section three.

1.1. Theoretical framework

[Sternberg \(1997\)](#), in his Theory of the Mental Self-Governance (TMSG), defines styles as "a way of thinking. It is not an ability, but rather, a preferred way of using the abilities one has. (...) A style refers to how someone likes to do something" ([Sternberg, 1997, p.8](#)). The styles involve many variables, such as the environment, culture, schooling, upbringing and gender that can give shape to students' way of thinking.

[Sternberg and Grigorenko \(2001\)](#) affirms that the styles are both measureable and teachable, from socialization processes, or di-

rectly through teaching practices, which is relevant for the empowerment of a person's TSs in a specific situation, providing relevance of interest to the educational dimension.

A hypothesis that the TMSG assumes is metaphorized by [Sternberg \(1997\)](#) between the personal preferences and those that are socially visualized:

The forms of government we have in the world are not coincidental. Rather, they are external reflections of what goes on in people's minds. They represent alternative ways of organizing our thinking. Thus, the forms of government we see are mirrors of our minds ([Sternberg, 1997, p.19](#)).

Assuming social diversity, the hypothesis suggests—among other things—raising the personal preferences of students as a cognitive variable in learning, which might indicate why a student has preferences in performing certain types of activities, or why a specific use of knowledge is more attractive. Responding better to teaching practices over others; but, on the other hand, it also suggests the promotion of flexibility among TSs as a didactic practice in teaching and learning processes.

The TSs are divided into five dimensions: *functions*, *forms* of thinking, *levels*, *scopes* and *leanings* of mental self-governance. The styles are summary according to table 1.

Table 1. Summary of TSs with the five thinking dimensions.

Functions	Forms	Levels	Scopes	Leanings
Legislative	Monarchic	Global	Internal	Liberal
Executive	Hierarchic	Local	External	Conservative
Judicial	Oligarchic			
	Anarchic			

Source: ([Sternberg, 1997, p.26](#)).

The styles' functions refer to the type of work that individuals perform in their daily activities, their preferences for carrying out certain tasks or projects, and the way they approach certain situations in order to adapt to their sociocultural environment. The forms refer to the way one approaches the world and its problems, either from one perspective, several or randomly. The levels refer to how one approaches a problem to reach a solution, either in a general or a particular way. The scope refers to the way people interact either with themselves or with others. Lastly, the leanings refer to the tendencies that exist when seeking or avoiding change when addressing different problems or issues.

1.1.1. Characterization of styles

In relation to the *functions of thinking*, people who prefer the Legislative style tend to plan how to solve problems, following their own rules. In addition, they prefer activities that allow them to put their creative capacity at stake. On the other hand, those people who prefer the Executive style prefer to follow the rules and work with the structures that already exist, instead of creating them; also, they prefer to perform activities when they are told what and how to do things. In the case of those who prefer the Judicial style, they have the tendency of analyzing, comparing, contrasting, evaluating, correcting and judging ideas, rules, procedures, structures, contents and existing problems.

As for the *forms of thinking*, people who prefer the Monarchical style are characterized as those who approach problems from a single perspective, taking into account only one objective at a time; thus, they have a limited sense of priorities and alternatives, leading them to see things from one single point of view, being motivated by a single goal or need at the same time, paying attention only to aspects that interest them and considering unimportant everything that is not related to their preferences. Moreover, when speaking or writing, they are guided by one main idea, preferring to discuss problems and general issues instead of details. People with a Hierarchical style address their problems from various perspectives, establishing a set of hierarchies and needs, knowing they cannot reach all goals equally and understanding that some are more important than others. People who prefer the Oligarchic style often give the same importance to several objectives that are presented to them. Finally, those people who prefer the Anarchic style usually approach problems in a random way, using different procedures for their solution. In addition, they tend to be very creative, managing to see solutions that others often overlook.

With regard to *levels of thinking*, people who prefer the Global style, approach problems by ignoring or simply rejecting the details. On the contrary, people who prefer the local style, when facing problems tend to focus on the details.

With respect to the *styles' scope*, people who prefer the internal style are usually introverted and seek to solve problems individually, sometimes distant from other people. On the contrary, extroverts prefer the external style. In addition, they like to work as a team

and interact with the rest of the people.

Style leanings have two opposite poles: on the one hand, there is the liberal style, preferred by people who tend to go beyond the existing procedures and rules, and, on the other hand, there is the conservative style, preferred by those people who tend to avoid change, looking for old strategies to solve problems that arise.

1.2. State of art

From an educational focus, there are several investigations that use the TMSG, which highlight socioeconomic aspects (e.g., Sternberg and Grigorenko, 1995), academic performance (e.g., Cano-García and Huges, 2000; Grigorenko and Sternberg, 1997; Zhang and Sternberg, 1998, Zhang, 2002; Zhang, 2004), and learning styles (e.g., Zhang and Sternberg, 2000).

Proposals about classroom resources have also been made. Spangenberg (2012) explains how to build support guidelines on choosing two mathematical topics in 8th grade students, showing the relationships between cognitive learning requirements and the use of a mathematical object, concluding with a sequent development of TS flexibility. In this case, the author considered as a goal the development of creativity through the promotion of specific TSs, considered as valid distinctive components to decide which mathematical educational section is fitting for students.

Agreeing with Betoret (2012), the majority of the studies that used the TMSG have focused on students, achieving set interest outcomes for the understanding of descriptive and interpretive phenomena. In this direction, but from a referential approach, it is interesting to study instruments or models to strengthen professional training processes. Regarding that, García Ahumada (2005) studies the relationships between the TSs found in the graduate profile and students of medicine who are in their second and fourth year, with the objective of determining a certain coincidence degree; establishing a first approximation regarding the use of a referential structure, considering a single source of data for such a task: the graduate profile.

If we take into consideration the social component of the case being studied, it is possible to add more data sources for referential construction, recognizing realities of the educational institution that are relevant. In relation to that, a sensitive variable in the educa-

tional process—and particularly in Chile—is the socioeconomic factor, and, agreeing with Lizasoain et al, (2007), such variable cannot be omitted in references for their training process, because they are crucial in academic performance (Vargas, 2007).

In the case of the UBO's Computer Engineering program, it is interesting to study the students and the graduate profiles from a cognitive perspective, since this kind of research can be used as an instrument that continuously provides reinforcement and updates to professional training methods, being capable to propitiate flexibility in the TSs for the new students, prioritizing styles that are in accordance with future professional tasks. From this, we could say that there are TS of that are more priority than others by the UBO. Taking all this into account, our goal is to identify which thinking styles are appropriate for UBO's computer engineering program, which will allow us to contrast the referential profile of graduates of the program with the different stages of training of their students.

This would allow contributing, from a cognitive educational paradigm (Sternberg, 1997), to the establishment of strategies that optimize their training practice. For this, the following specific objectives are defined:

1. Constructing a Referential Cognitive Profile of the Graduate (RCGP) by means of a data triangulation process, between the reference profile from the director of the UBO's Computer Engineering program and the associated documentation to the program of the graduation profile.

For the investigation, the said associated documentation refers to the program objectives, occupational field and graduate profile. This objective allowed us to identify the appropriate thinking styles for UBO's computer engineering program.

Next, the focus of the study shifts towards the students:

2. Identifying the existence of association of the TSs in the students' responses at the initial, intermediate and final levels.

Both results associated with the objectives have a qualitative nature and are determined through the TMSG, being possible to consider the next objective from a vertical comparison of such results:

3. Comparing the results of association of TSs with the results of the RCGP model.

2. MATERIALS AND METHODS

Agreeing with Spangenberg (2012), in order to address our objectives correctly, comparative studies associated with students and institutions need to be approached with qualitative and quantitative methods.

2.1. Context

The University of Bernardo O'Higgins is an academic institution in Chile that was founded in the year 1991, opening the Computer Engineering program in the School of Engineering, Science and Technology, in Santiago, Chile, in the year 2011. The data was taken in June, 2016, when the program had already generated graduates and had current students in all generations.

In Chile, the socio-economic differences among students are commonly linked to their academic performance (SIMCE, 2013, p. 47), which is measured through the SIMCE standardized test (Education Quality Assessment System); a tool—developed and published by the Education Quality Assurance Agency—that allows for the assessment of students' learning process in certain subjects. In the case of mathematics, students coursing their second year of high school, or who are fifteen to sixteen years old, that attend municipal schools (public) tend to get lower scores than students attending semi-private schools (partially funded by the state), and these last tend to get lower scores than students attending private schools. Such pattern hasn't changed in the last fifteen years (Agency of Education Quality, 2018a, 2018b).

The data in the table 2 makes evident that the mentioned pattern has been kept; the students' academic performance fluctuates according to the schools they attend, being of interest to have a study of this nature, since it could potentially be used to help bridge the existing gap between these groups which do require strong support (Donoso and Cancino, 2018, p.239) on the academic and social aspect.

Table 2. Procidence college in some generations and Simce results.

Procidence college	2014	2015	2016	Simce results
Municipal	33,33%	43,75%	13,04%	241
Particular subvencioned	58,33%	56,25%	82,61%	270
Particular	8,33%	0%	4,35%	335

Enrollment percentages from generations 2014 to 2016 in Computer Engineering in the UBO according to the students' school backgrounds. The far-right column shows the SIMCE scores obtained in mathematics by the students of generation 2012 in Chile. Source: [Department of Integral Formation \(2016\) \[DFI\]](#).

2.2. Qualitative method

The participant for the construction of the RCGP model, is the director of the UBO's Computer Engineering program, being the only one who has held his position in the institution since the start of the program up until now, when the data was collected.

As instrument, a semi-structured interview is created to characterize the TSs that the director considers as a reference for their program, since they are aware of the skills and competencies needed to be able to carry out the tasks the students will have to perform in the labor world in the future. Thus, there was a first preparation of the questionnaire, which must be piloted and adjusted, achieving precise aspects of relevance according to the objectives of each question. The questionnaire is based on the explanation of the desired skills and the description of the types of tasks that a graduate of this program must perform, so that clear characteristics or principles of each TS are recognized. After a first analysis of the data extracted from the interview transcript, we realized a second interview was going to be necessary in order to address aspects of analysis validation.

While addressing the specific objective N°1, we start to realize that the RCGP has a multifactor nature, where the type of information source determine its construction, because these sources have an underlying visualization of what is expected cognitively in computer-engineering work. To continue, several sources are considered, that will allow us to study and build this conceptual profile in context, it

being relevant to perform a triangulation of data ([Cisterna Cabrera, 2005](#); [Denzin 1990](#)). We decided for this type of methodology since the contextualization of data and addressing its social diversity is considered essential to make an objective and accurate description and interpretation ([Cisterna Cabrera, 2005](#)).

For a coherent construction of the RCGP, a systematic strategy is proposed between the chosen sources; additionally, in order to minimize the bias that may exist in the analysis of each researcher individually ([Gavira and Osuna, 2015](#)), a triangulation among researchers is performed ([Valencia, 2000](#)) throughout the whole process. All this reflects a correct and adequate scenario for the triangulation of data ([Donolo, 2009](#)).

The information sources are the following: 1) the director of UBO's Computer Engineering program; 2) UBO Documentation (UBO-D), composed of the Objectives, Occupational field and Graduate Profile of the Computer Engineering degree; and 3) the report of the Department of Integral Training (DFI for its acronym in Spanish) of UBO. The latter provides socioeconomic and psychoeducational information on the students of each generation of the program. If we take into account such sources of data for the analysis, it will minimize the individualized bias of the informant ([García Ahumada, 2005](#)).

The director, as information source, will allow us to describe the student's training environment, and specifically recognizing the skills that a graduate from this program acquires at the end of the curriculum structure. During this process, the director of the program is the one who leads its projects, based on his knowledge, professional experiences, beliefs and institutionalization; therefore, the director is asked to answer the MSG Thinking Styles Inventory questionnaire based on the preferences expected in the graduates.

The data of the UBO-D is extracted from public information declared by the institution from the year 2016 up to the present date ([UBO, 2018](#)), based on the skills and abilities expected in the disciplinary domain and declaring certain types of tasks that the graduate will perform in their career. Finally, the DFI data is synthesized in an internal diagnostic report of the Computer Engineering degree ([DFI, 2016](#)) and offered for the present investigation. The DFI document is known by the director. An example of some data are: the parents' education, educational results of the admission previous to entering the program, and the family's economic situation, under-

standing that “the relationship that exist between students’ socio-economic situation and their access to education in a neoliberal society such as the Chilean” (Cisterna Cabrera, 2005 p. 64).

This way, the RCGP is the result of the triangulation between the questionnaire data, the interview transcript analysis, and the declared cognitive profile for the institution in UBO-D. Such analysis is positioned between two axes that govern the entire process, one that characterizes a socioeconomic context from the DFI and another that provides an objective interpretation of the data. The diagram for the construction of the data triangulation is shown in Figure 1.

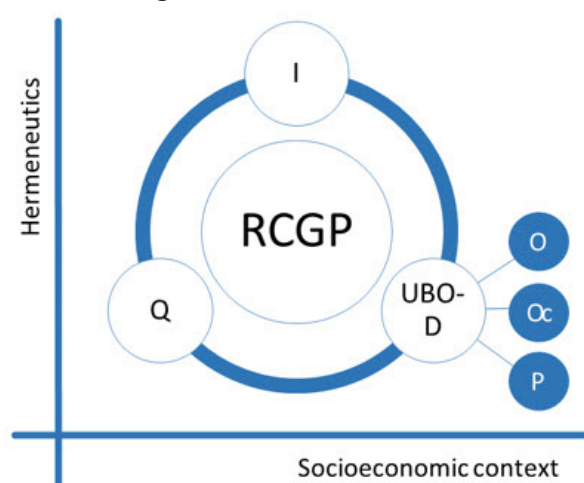


Figure 1. The RCGP model for the UBO’s Computer Engineering program. The considered components are: I: interview; Q: questionnaire; UBO-D: UBO documentation; O: objectives; Oc: occupational field; P: graduate profile.

In the study, interpretation, analysis and construction of the RCGP model, it is assumed that its validity and reliability rests ultimately on the researcher’s rigor (Cisterna Cabrera, 2005, p. 62), which form of construction comes from a hermeneutic rationality, in accordance with Cisterna Cabrerar’s statements (2005).

Furthermore, the students can participate directly or indirectly in the data; for instance, they could take part in it through the principal’s opinion or the information in the D-UBOs, being the information on the socioeconomic aspect of high relevance for the interpretation of data, its analysis and the results of the RCGP model.

2.3. Quantitative method

The participants considered for this study are 38 male students in the Computer Engineering program of the UBO in June of 2016. Since only 4 students were women, representing only 9% of the total, the data and its interpretation wouldn’t have been reliable for use. The participants represent 88% of students; each accepted to take part in the investigation under an informed consent, adding name and sex in the form. The sampling was performed by considering a significance of 5%.

Understanding that the knowledge in students in the program is progressive, an initial, intermediate, and final classification level is constructed according to the number of specialty courses taken, taking into account that its curricular structure admits basic or general subjects. The initial level corresponds to students who are attending or who have completed, at most, 5 of the specialty subjects; the intermediate corresponds to those attending or who have completed from 6 to 17 specialty courses; while the final level corresponds to those who have completed from 18 to 25 specialty courses. The data was taken during an academic semester, which makes it impossible for the students to have been surveyed in more than one level.

The distribution by section was 86%, 94% and 83% of respondents in the initial, intermediate and final program levels, delivering a total of 18, 15 and 5 male respondents by level, respectively.

The MSG Thinking Styles Inventory (Sternberg, 1999) uses a 104-item, psychometric questionnaire in Spanish, which considers the measurement of the 13 TSs, generating a distinction in gender and occupation; specifically when considering the measurement for adult men and women who are or not in college, being relevant to the study group and validated in the research practice, since it has been used in cohort educational studies such as Bishop and Foster (2011); Gaete-Peralta (2015); González-Pienda et al, (2004); Gutiérrez and Krumm (2012); Huincahue (2014); López Martínez and Martín Brufau (2010); Saxena and Aggarwal (2011); among many others. That being said, to address objective N°2, the questionnaire was used, where the aim of finding some existence of significant association between the TSs and the perception of students regarding their preferences in academic-labor scenarios, considering the independent data extraction for each study level.

Each style is composed of 8 items measured on the Likert scale “being 1 if the affirmation does not fit at all, that is, if it almost never does things like that and 7 if the statement fits completely, that is, if one always does things like that” (Sternberg, 1999, p. 28). The score associated for each style is calculated through an average, which qualifies the TSs in 6 categories, from *very low to very high*.

To measure the reliability of the construct, a Cronbach’s alpha reliability analysis was performed for each measurement style, considering the categories described by George and Mallery (2003).

Using the R-project software, a correlation analysis was applied using Fisher’s exact test. Due to the distribution of absolute frequencies and the differences between the number of categories, rows, and columns, this analysis was performed internally at each study level for the 5 dimensions: functions, forms, levels, scopes and leanings. After that, a correspondence analysis was performed to observe the distribution and the association graphic between the mentioned variables, specifically those that where significant association evidence was found.

3. RESULTS

3.1. RCGP results

3.1.1. Construct

The MSG Thinking Styles Inventory’s application to the director with respect to preferences expected by the graduates of the program shows the following results: legislative: low middle (4.3); executive: high (5.8); judicial: high middle; monarchic: low middle; hierarchic: high (7.0); oligarchic: very low (1.8); anarchic: very low (2.5); global: low middle (3.5); local: very low (2.4); internal: very low (2.0); external: high (5.8); liberal: low middle (4.3); and conservative: low middle (3.8). This results show preferences for three styles: executive, hierarchical and external.

3.1.2. Interview

The director initially talks about the students who enter the program, highlighting those students with a different personality in comparison with other engineers, since “many times they are more introverted (...) the extreme cases are those that I call autistic, not

very sociable people”. (according to DFI data, the average percentage of the generation of students from the program that have a diagnosed disability is 24,28%, considering visual disability, attention deficit and others).

Upon realizing the previous perception, an intention to change the attitude of the students springs up in the director’s mind; “what I try telling them, since they enter the program, is to buy the story and that they are going to be engineers and ,therefore, they will have to work with people, to lead teams, etc.”. “To buy the story” is a Chilean idiom, used to promote self-confidence and self-esteem by believing in ourselves facing problems with a positive attitude. In *Economía y Negocios* (2016) a use of this expression can be found.

The director shows interest for making the students stop being introverted, giving reasons entirely work-related, making evident his preference for the external TS, since the tasks and activities that are to be developed in the future must be framed in environments that favor certain attitudes or preferences:

Therefore, what I have to work on is to try and make the new students, who are usually more introverted and more likely to play “*behind the scenes*”, “*get in the game*”... Because, if truth be told, if he’s going to become an engineer, he will have to sell or design projects, to lead teams, because there are fine lines involved and deadlines to meet, then one must have the ability to talk with the entire team, encourage and make them perform to their maximum capacity.

For the creation and design sale of the projects, it is desirable to be able to properly organize the requested tasks, and, many times, the computer engineer is expected to participate and collaborate in multidisciplinary environments, where, for the director, optimizing is as a continuous skill of a computer engineer. Thus, he describes scenarios where one will participate, showing the multifocality of tasks and the need for a creative professional for good preparation:

This is hard engineering. One must have the ability to put themselves in many situations and look for the best, fastest, most efficient solution, one that takes up less memory... engineering problems, effectively... and be very creative.

The metaphor of *hard engineering* is understood in a sense of a technical and systematic rigor required in their professional work, whether to optimize a website or to build a

software.

The truth is that I need to be innovative, creative. Currently, the whole world is asking for it, because, nowadays, these are some of the most used resources, but that does not mean that I am not rigorous in terms of having some way to know how I'm going to design the software or how I'm going to run it, because it's not just a person that participates in the software design.

Such tasks fit better with the legislative and executive styles, since it is a characteristic of said style to solve problems which solutions must be created or constructed; for example, in the optimization of a web site or software construction. Additionally, the theoretical rigor in programming aspects requires the ability to achieve a hierarchical organization of tasks to accomplish the objectives.

In this regard, the bivalent work of the functions exercised is highlighted, whether in the technical and natural field of the discipline, or in the multidisciplinary practice declared by the director, which is where the product's function or the solution reached (for example, to devise a software that optimizes the informative and digital work of a public service) is reflected. In this sense, the global and local TSs are recognized, since, in certain aspects of their work, they are required to use specific knowledge, while also knowing and understand the scientific and/or technical impact of their job.

3.1.3. UBO-D

For the three data components analyzed (O, Oc & P), only two TSs were clearly recognized: the declaration of professional skills (P) and the program's objective (O), which recognizes the graduate as someone able to work with professionals from other domains that have an end in common, such as software engineering, networks, web programming, mobile programming and computer project management (UBO, 2018). This suggests the promotion of collaborating with work teams, which is related to the external TS.

On the other hand, the importance of planning, analyzing, designing, implementing, documenting and managing computer system projects for the professional future is also stated. Which poses a particular development of creativity and a preference for legislative style, because, according to Sternberg (1997, p.20), "creative people need not only

the ability to come up with new ideas, but also the desire to".

3.1.4. RCGP results

In respect to the functions of thinking, a preference for the legislative style is recognized in the interview and in the D-UBO, yet it is ranked with a "low middle" preference in the questionnaire. However, another aspect granted by the DFI is that the students who enter this program scored close to 500 points on the PSU (considering that a maximum of 850 points and a minimum of 450 points is needed on the University Selection Test to apply to these type of universities), this score being what does not allow them to enter into the best universities in the country. In addition, they have similar results in the NEM (secondary education average grading from 14 to 17 years old), which affects the academic-university performance, specifically in the perception and expected achievements of the program in the initial level.

This means that the efforts made to achieve this type of preferences are important. The questionnaire shows a reduction of preference for the legislative style, which is in accordance with the type of students the UBO admits, and does not discard the preference for the legislative style, since creativity is even presented as a necessity.

The executive function of thinking is clearly preferred in the questionnaire and interview. Moreover, although there is no clear evidence in the D-UBO, it is implicitly visualized in tasks such as planning, project management, execution or implementation. These tasks also entail a requirement for the hierarchical TS, which is preferred in the questionnaire and the interview, and, therefore, is considered preferred for the RCGP.

The Local and Global levels of thinking are clearly preferred in the interview, although the preferences in the questionnaire are low and are not lucidly recognized in UBO-D.

Regarding the scope of thinking, there is evidence in the three samples taken that the external thinking is clearly preferred.

In summary, and based on the analysis performed and synthesized, the RCGP proposes preferences for the UBO's Computer Engineering program pointing towards legislative, executive, hierarchical and external thinking. These are the appropriate thinking styles for UBO's computer engineering program.

3.2. Students' thinking styles by level

The data analysis was performed considering the TSs in its 13 varieties as shown in table 1, in a quantitative way (scores) and qualitative way, following the descriptions made in the theoretical framework.

3.2.1. Construction of reliability analysis

To measure the reliability of the items in each TS, the calculation of Cronbach's Alpha coefficient is described by George & Mallery (2003, p. 231). The results are as follows: legislative: good (0.814); executive: good (0.806); judicial: acceptable (0.721); monarchical: questionable (0.618); hierarchical: acceptable (0.771); oligarchical: poor (0.545); anarchical: questionable (0.633); global: acceptable (0.722); local: questionable (0.660); internal: acceptable (0.773); external: excellent (0.921); liberal: good (0.896); conservative: good (0.810).

From what is declared by Jisu, Delorme and Reid (2006), the reliability value in exploratory investigation should be equal to or greater than 0.6; while in confirmatory studies it should be between 0.7 and 0.8. The present investigation establishes an average of 0.745, showing that, on average, and in most of the items, there is high reliability.

On the other hand, the dimensions associated to the TMSG of Table 1 are used, where the objective is to identify the existence of association between the students' perception of their professional training and the TSs, considering the levels defined in 4.1.

Next, the correspondence analysis is performed on each level, using Fisher's exact test. The statistically valid results ($p < 0.05$) are shown in table 3.

Finally, the scores of each TS have been used to identify the existence of significant differences between the degrees of perception of TSs with the three study levels measured independently. For that, the Kruskal Wallis non-parametric test was applied, showing evidence only on the internal TS, where significant differences between the study levels ($p\text{-value} = 0.04322$) are represented. See figure 2.

Table 3. Results of association and correspondence analysis.

Study level	TS	p-value	Correspondence Results
INITIAL (n=18 students)	legislative	0.009	Preferred
	executive		preferred
	judicial		not preferred
	internal	0.011	preferred
	external		not preferred
INTERMEDIATE (n=15 students)	legislative	0.0004	not preferred
	executive		preferred
	judicial		preferred
	Monarchical	0.0003	preferred
	Hierarchical		Unclear preference
	Oligarchical		Preferred
	Anarchical		Preferred
	Internal	0.004	not preferred
	External		preferred
FINAL (n=5 students)	legislative	0.036	not preferred
	executive		Preferred
	judicial	0.048	preferred
	liberal		preferred
	conservative		not preferred

The correspondence have been validated statistically ($p < 0.05$). Source: self-made.

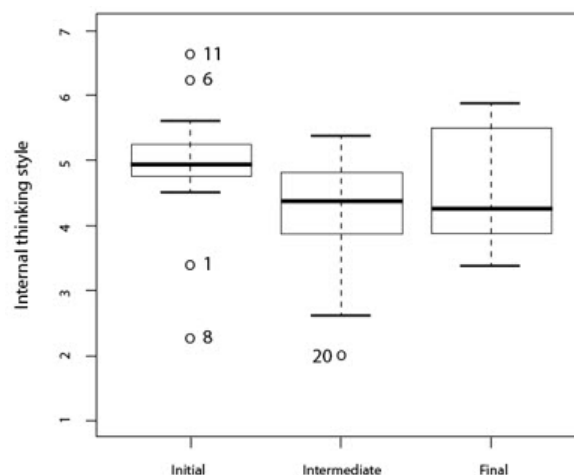


Figure 2. Distribution of internal TS, regarding the three independently studied levels. Source: self-made.

3.3. Comparisons: RCGP and students

We consider necessary to emphasize that the sample size of the investigation ($n=38$) has limited the statistical analysis scope, even considering the fact that the questionnaire was taken by 88% of the program students. However, statistically valid associations are recognized between the TSs of students for each level in its dimensions, which, by using

the RCGP, are possible to be compared. In this regard, we refer only to the styles recognized by the RCGP.

In regards to the initial level, a clear association is recognized in the functions of thinking, showing preferences for the legislative and executive styles, which is in accordance with the RCGP. This does not happen

in the scopes of thinking, since preferences of the internal style are evident, with the external style being preferred according to the RCGP. This information was implicitly stated in the interview with the director, when characterizing the students just entering into the program. In this sense, the comparison is consistent with the data.

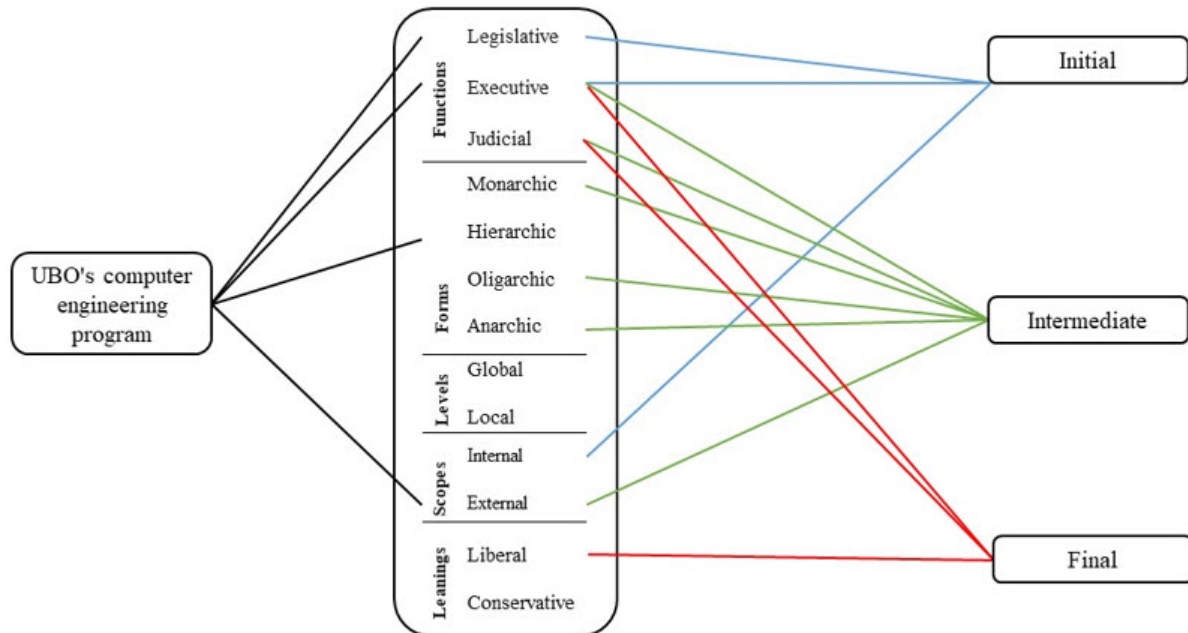


Figure 3. Dynamics of the preferences described by the students, knowing the institutional preferences

From the functions of thinking on the inter-mediate level, a correspondence with the executive style is recognized and the preference towards the legislative style disappears. In regards to the forms of thinking, preferences for each style emerge, except the one preferred by the RCGP (preference is unclear), showing clear differences with respect to what the institution expects from its students. Regarding the scope of thinking, the preferences of the intermediate level tally with the RCGP results (external style).

We can observe that there are coincidences of preferences, both at the final and intermediate level, for the executive and judicial styles. However, in none of these two levels there is a preference for the legislative style (see figure 3).

4. DISCUSSIONS

This investigation positions the cognitive dimension as a study source for the professional training processes. In this regard, the RCGP model provides valuable information that can be used to update and keep perfect-

ing study programs, teaching practices and applicant/graduation profiles. The RCGP model is highlighted. The considered methodology features make up an instrument that allows to put together the declared expected learning results, coming from multiple sources that affect the formation process. Moreover, the axes in the Figure 1 provided an interpretative structure of the data, enabling us to characterize and suggest a socio-economic underlying situation of the students and, therefore, the results as well.

We consider relevant that the RCGP encompasses the specific activities expected to be done at the end of the professional training process, letting us identify—in an easier manner—the Computer Engineers trained by the UBO through the TSs, without finding a tool of similar range in the literature of specialty. In this sense, the RCGP articulates the social information with the economic data of both the students and the program, being a distinctive element in comparison with other studies, with the purpose of being used to enhance professional formation in general. Its construction and use allowed us to discover

the preferences for the legislative, executive, hierarchical and external TSs in the Computer Engineering program imparted by the UBO.

Regarding research associated with the education of the engineer, Crompton (2015) highlights the importance of creativity in the practice of the engineer, which is connected with the legislative and liberal thinking styles (Zhang et al., 1998). In this regard, the data of the present qualitative analysis highlight that creativity should be a focus of interest in training (Crompton, 2015, Ghersi and Miralles, 2014, López et al., 2010), but also, figure 3 indicates that the legislative style is preferred only in the initial state, and the liberal inclination in the final state. This provides, in addition to a concern for engineering training programs, an antecedent for conducting future research.

In addition, it should be noted that no research has been found that characterizes the preferences of the institution's thinking styles. In this regard, the results found are consistent with research associated with engineering education, such as Lee and Sidhu (2015) or Kim (2011), which express preferences towards the pragmatic, the creative and the constant order of tasks that must perform an engineer. These results, together with the executive style, have been granted by the RCGP model.

5. CONCLUSIONS

At the Initial level, it is concluded that the students prefer the internal style, differing from the scope of external thinking that the RCGP model demonstrates, suggesting that proposal-making should be directed to external style from the first year. The nature of this proposal may be of a pedagogic origin (e.g., exhibitions, discussion tables) that succeeds in cultivating socialization processes, whether between peers or with people from areas where the multidisciplinary character of the students' future work is laid out. On the other hand, the preferences of functions of thinking are similar with those of the RCGP (legislative and executive).

At the Intermediate level, a similarity of external thinking of the RCGP results is evidenced, which could be the consequence of simply dealing with a different human group, or the actual initial maturation that exists in the students of the program. From the director's perception, the great majority of students from this program are introverted (see section 3.1.2); therefore, the actions declared by the director strengthen on a different degree the

academic and labor preferences that one has at this level.

In relation to the functions of thinking, the similarity with the executive style is maintained, but the same does not happen with the legislative style. The executive style is recognized in training, for instance, in mathematical or accounting courses that have a utilitarian purpose of such knowledge for the training, and are located at the beginning of the curriculum structure. As an example, in general, mathematical demonstrations are not required in the computer-engineering mathematics courses, but they understand the use of binary systems and solve mathematical problems in related areas of the career, developing other skills like, a logical-deductive and structural rationale, granted by the use of mathematics.

In the final level, preferences similar to those recognized in the intermediate level were found; there are preferences for the executive style and not for the legislative style. Given the situation, the present study suggests considering milestones in the training that encourage the legislative style. A possibility to recognize these kind of milestones is in the final year projects, although these type of preferences, in a work environment, could be initiated from different moments of the formation process, since other moments could be included for creation, project planning and the solving of problems, related to the discipline with different complexity levels, which will allow for the adjusting and flexibilization of the styles towards what the institution needs.

Although, the data does not possess a longitudinal scope, it is interesting to see the distribution results of the internal TS in the three levels (Figure 3), since one appreciates the analysis of preferences throughout the program for one specific group of students, remaining in the framework of discussion and in the perspectives for the future scientific breakthroughs in the area. In this regard, this study could be a basis for developing longitudinal research, because the methodological framework presented in this study allows, with the help of the RCPG model, to identify institutional preferences, contributing to the training of university students from a cognitive perspective.

Considering all the factors we have discussed, it's clear to conclude that the present study provides information of interest for the Computer Engineering program in the UBO, and for the professional training of Computer Engineering in general, highlighting that exploring, recognizing and/or promoting TSs

profiles in the performance of future work tasks, will contribute to building human capital of excellence for specific tasks required in our society.

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Conflict of interests

The authors declare no conflict of interest.

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IDENTIFICATION OF COGNITIVE MANIPULATIONS THAT HAVE THE GREATEST IMPACT ON STUDENTS IN THE INTERNET

Dr. Anna Zhdanko, Don State Technical University, Rostov-on-Don, Russian Federation

E-mail: rostov-na-donu.an@yandex.ru

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ABSTRACT

The study puts an emphasis on exploring cognitive manipulations contained in the Internet resources (social networks and blogs) that have the greatest impact on students. The study was conducted with 159 students of Don State Technical University. 50 samples of media texts (of various formats) containing cognitive manipulation were taken from social networks sites and blogs. Focus group method, questionnaire, method of Critical Discourse Analysis and methods of mathematical statistics (Principal Component Analysis) were used for data collection and processing. The findings allow us to identify and describe the features of such cognitive manipulation as "presence effect", "focus on pros", "halo effect", "emotional resonance", "ambiguous language", "anonymous authority", "primacy effect", "exaggeration" and identify the manipulations that have the greatest impact on students. Recommendations aimed at reduction of the impact of manipulative techniques were suggested. The results of the present study may help teachers and psychologists in their work.

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1. INTRODUCTION

In our current digital age of information and communication technologies and mass media development, when printed text, is gradually being replaced by non-printed (Internet, video, television, electronic resources), of particular importance is the training of young people who will be able to think critically and resist the negative influence from the outside. Nowadays, the Internet is a parallel school for young people. It's a source of education, entertainment, communication. Thanks to the Internet, young people have a developed virtual thinking (Asmolov, 2009). Along with

the advantages, Internet has a number of significant drawbacks. The main disadvantage is expressed in the ability to have a manipulative impact on the human psyche. Young people, due to their unstable value-semantic and emotional spheres, are particularly exposed to this influence. Posts with extremist, suicidal, pornographic content are often posted in social networks, as well as posts promoting the use of narcotic, psychotropic substances, immoral lifestyle, etc. During an infection the cause of evil lies in the susceptibility of the living organism to the disease, when the body perceives foreign organism as its own. A similar situation occurs when one perceives someone else's message. Verbal manipulation of the subconscious mind, in particular hypnotic suggestion, is based on this peculiarity (Demyankov, 2017: 8).

In recent years, many authors have contributed to clearer understanding of the role of manipulation in mass media (press, radio, television, Internet) (Zelinsky, 2014; Voiskounsky, 2010; Demyankov, 2017; Livingstone, Mascheroni and Staksrud, 2018; Kara-

Corresponding Author

Dr. Anna Zhdanko, Don State Technical University,
Rostov-on-Don, Russian Federation

E-mail: rostov-na-donu.an@yandex.ru



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Murza, 2004). But this problem continues to be relevant, as manipulators keep on inventing new techniques. Zelinsky S. A. defines manipulation as a conscious influence on the subconscious mind of other individuals with the goal of evoking certain neurotic dependency (Zelinsky, 2014). Inherent biological programme of our behaviour is insufficient for us to become people. It is supplemented by a program recorded in the signs of culture. So, our behaviour is always under the influence of other people, and we can not protect ourselves from this impact by some rigid barrier (Kara-Murza, 2004).

Since our research is related to the study of cognitive manipulation, we would like to focus our attention on its peculiarities. T. Van Dijk defines cognitive manipulation as a form of mind control involving interference in the processes of understanding, formation of mental models and representations (Van Dijk, 2006: 359). Chumakova V. V., Daineko V. V. define cognitive manipulation as a psychological influence on the learner, which contributes to the actualization of his specific knowledge and meanings, the formation of a certain way of thinking that affects human behaviour. Cognitive manipulation is based on the selection variants of information symbols with the purpose of changing the internal cognitive algorithms of students' thinking and their cognitive activity (Chumakova and Daineko, 2015). We define cognitive manipulation as a verbal and non-verbal influence on the recipient's psyche, which contributes to the actualization of the latter's certain meanings and knowledge and affects his way of thinking and behaviour. To the verbal component of cognitive manipulation, scientists refer such manipulative methods of influence as the mismatch of titles to the content, the use of elevated vocabulary for marking "ours" and low, negative-estimated vocabulary for marking "strangers", incoherent answers, etc. (Mikhaleva, 2009; Sukhanov, 2018; Wodak, 2006). To the non-verbal cognitive manipulation we refer use of colour, photos, intonation, gestures, etc. (Van Dijk, 2006; Voiskounsky, 2010; Burgoon, Blair and Strom, 2008).

Despite the fact that theoretical and experimental investigations devoted to the impact of cognitive manipulations in mass media have already been carried out (Demyankov, 2017; Dzyaloshinsky, 2005; Livingstone, Mascheroni and Staksrud, 2018; Maillat and Oswald, 2011; Van Dijk, 2006; Zelinsky, 2014, etc.) the problem of impact of cognitive manipulations contained in Internet re-

sources (social nets, blogs) has been considered extremely little in Russian science. In our opinion, the main task of modern teachers is to study virtual thinking of students by means of the study of virtual reality peculiarities. In order to study virtual reality teachers have to get acquainted with modern information technologies. We support the idea of L. Stosic that the majority of teachers have psychological aversion of technical innovations (Stošić and Stošić, 2013). Definitely it doesn't contribute to the understanding of students' nature.

There are a lot of cognitive manipulations used in Internet discourse, but we would like to study 8 types widely used manipulation according to S. G. Kara-Murza and S. A. Zelinsky, namely: emotional resonance, ambiguous language, primacy effect, presence effect, exaggeration, focus on pros, anonymous authority and halo effect (Kara-Murza, 2004; Zelinsky, 2014).

"Emotional resonance" is a type of manipulation where a certain mood with the simultaneous transmission of propaganda information is created. Emotional resonance allows removing the psychological protection that a person builds at the mental level, consciously trying to protect himself from propaganda or "brainwashing". Being protected from propaganda messages, at the rational level, a person is always able to build a system of counter-argument and reduces all efforts to impact to zero. If the impact on a person occurs on an emotional level, outside of his conscious control, no rational counterarguments in this case work. The media is always trying to evoke strong emotions in a wide audience (Zelinsky, 2014).

"Ambiguous language" technique is expressed in the incoherence of the message, the use of complex terminology, etc.

The key principle of "primacy effect" is "who tells the world the first word is always right". Psychologists have found that the first candidate who convincingly presents himself as a winner during the election campaign have advantages. To such conclusions came K. Hovland and other scientists from Yale University who believed that we tend to give preference to the information that came first. It is very difficult to change an already formed opinion, (Hovland 1954).

The "presence effect" manipulation was firstly put into practice by Nazi propaganda. Today it is described in all textbooks on journalism, psychology, sociology. It includes a number of tricks that simulate reality. They are constantly used in "reports from the

battlefields” and in the “criminal” chronicle, fabricating shooting, catching bandits, car accident, etc. Everything looks as if the operator is in terrible excitement.

“Exaggeration” is used with the aim to over-emphasize something, make it better or worse than it really is.

The aim of “focus on pros” manipulation is to highlight only pluses of an event or person. Thus, the manipulator manages to push his idea.

“Anonymous authority” manipulation is based on references made to non-existent authority with the purpose to give weight to the information in the eyes of ordinary people.

“Halo effect” manipulation is based on two common stereotypes-misconceptions.

- being close to a famous or high-ranking person somewhat increases the status in the eyes of others.

- a successful person is considered being successful in all spheres.

Thus, the main aim of the research is to identify cognitive manipulations contained in the Internet resources (social networks and blogs) that have the greatest impact on students.

The research objectives are:

- to reveal cognitive manipulations in Internet resources (social networks, blogs);
- to identify the manipulations that have the greatest impact on students ;
- to describe cognitive mechanisms of manipulations used in Internet resources.

2. MATERIALS AND METHODS

The research was conducted on a sample selected from students of Don State Technical University (N=159). 50 samples of texts (of various formats) containing cognitive manipulation were taken from social networks sites and blogs. It was carried out in 2018. Participants were undergraduate students. Among them, most were first year students (84 or 52%), second year students (25 or 15,7%), third year students (50 or 31%). The research was based on the descriptive, qualitative and quantitative methods of analysis. Focus group method, questionnaire and method of critical discourse analysis were used for data collection and processing. To reach statistically valid conclusions, the IBM SPSS Statistics 23.0 software package was used.

Our study started with the selection of texts containing cognitive manipulation. The method of critical discourse analysis allowed

us to identify the type of manipulation. With the help of critical discourse analysis method we managed to reveal 8 types of cognitive manipulation. Method of critical discourse analysis is widely used by psycholinguists. N. Fairclough was the first to introduce this method (Fairclough, 1995). After determining the type of manipulation, we calculated the frequency of their use in texts.

Then 50 texts containing cognitive manipulation were offered to 159 students to determine the manipulations that have the greatest impact on students. This was not done simultaneously, as the study was conducted using the focus group method. The focus group method is widely used in psychology, sociology and pedagogy. There were about 12-13 students in each focus group. Thus, the focus group discussion was held in 13 focus groups. The task for the students was to get acquainted with the texts containing cognitive manipulation and express their belief or disbelief about the information contained in them on a five-point scale with the argumentation of their point of view. Students also expressed their attitude by selecting one out of five statements offered in Attitude Scale Questionnaire (I strongly believe – 1, I believe – 2, I neither believe nor disbelieve – 3, I do not believe – 4, I do not believe at all – 5).

For data processing was also used Principal Component Analysis.

3. RESULTS

The study of the Internet resources (<https://twitter.com/navalny>; <https://www.youtube.com/channel/UCgxTPTFbIbC-WfTR9I2-5SeQ>; <https://navalny.com/>; <https://www.instagram.com/navalny/>; <https://twitter.com/klichqotes>) allows us to analyze 50 media texts, reveal cognitive manipulations and describe their cognitive mechanisms.

Method of Critical Discourse Analysis was used to determine the type of cognitive manipulation and frequency of its use in texts. The results are shown in Table 1. More than one manipulation was used in one and the same text.

Table 1. Eight main types of cognitive manipulation used in Internet resources (social networks, blogs).

№	1	2	3	4	5	6	7	8
frequency %	80	70	65	60	60	50	40	40
Here,	1 – “emotional resonance”							
	2 – “anonymous authority”							
	3 – “focus on pros”							
	4 – “presence effect”							
	5 – “halo effect”							
	6 – “primacy effect”							
	7 – “exaggeration”							
	8 – “ambiguous language”							

“Emotional resonance” is used in 80%. This manipulation is marked by emotional and evaluative comments. For expressing disapproval negative-estimated vocabulary is used (“We endured poverty, humiliation!” “How long can we endure?” “It’s absurd...”, “it’s shocking”, “corrupt”, “fascists”, etc.). For expressing approval elevated vocabulary is used. Non-verbal component of manipulation is expressed by intonation, loud voice, shocking pictures.

“Ambiguous language” technique is used in 40%. It is expressed in the incoherence of the speech, the use of complex terminology, neologisms, jargons, redundant information, complementary polysemy, etc. For example: “If the ball bursts, it will not be inflated. Rather it will be inflated, but another one” (<https://twitter.com/klichyquotes>). Here we can find redundant information and incoherence of the speech.

“The primacy effect” is used in 50%. Students were offered several media texts on one and the same subject. They tend to memorize better and believe more the information mentioned in the first text.

“The presence effect” manipulation (used in 60%). Verbal component of manipulation is expressed by exact indication of the place and time of the action, detailed commenting of the events. The author conveys own feelings and emotional state and expresses his own attitude to what is happening, mainly with the help of the pronoun “I”. The narration is in the present tense. Non-verbal component of manipulation is expressed by sounds, images, visuals which help to cause a particular reaction and feelings.

“Exaggeration” is used in 40%. Verbal component of manipulation includes the use

of plural instead of singular, exaggeration of real numbers, interjections, exclamation, presenting material as sensational. Non-verbal component of manipulation is expressed by intonation, loud voice, impulsive gestures and mimics. Falsifying facts is widely used in exaggeration. For example, a group of people of 50-100 people is shown and it is said that thousands of people have come to support this or that activity.

“Focus on pros” manipulation (used in 65%) is marked by highlighting only pluses of an event or a person and hiding minuses.

“Anonymous authority” manipulation is used in 70%. Verbal component of manipulation is marked by the use of such expressions as “scientists have established...”, “doctors recommend...”, “a source from the nearest presidential entourage, who wished to remain unknown, reports...”, etc.

“Halo effect” manipulation (used in 60%) Verbal component of manipulation is marked by the use of the names of famous people with the reference to their words. Non-verbal component of manipulation is marked by the use of the images of famous people. And famous people are often depicted as “saviors”.

Focus group method, questionnaire and Principal Component Analysis were used to identify the manipulations that have the greatest impact on students (Table 2).

Table 2. Total Variation Explained “Identifying effective manipulation”

Manipulation	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	2,082	26,022	26,022
2	1,479	18,493	44,515
3	1,271	15,884	60,399
4	1,052	13,148	73,547
5	0,829	10,368	83,915
6	0,564	7,049	90,965
7	0,432	5,405	96,370
8	0,290	3,630	100,000

Here, manipulations (types of manipulation are sorted by the degree of importance):

- 1 – “halo effect”;
- 2 – “ambiguous language”;
- 3 – “anonymous authority”;
- 4 – “emotional resonance”;
- 5 – “primacy effect”;
- 6 – “presence effect”;
- 7 – “focus on pros”;
- 8 – “exaggeration”.

Table 2 shows that four eigenfactors have values greater than 1.0. Therefore, only four factors are selected for analysis. The first factor explains 26,022% of the total variance, the second factor explains 18,493 %, the third factor explains 15,884% and the fourth factor explains 13,148 %.

Table 3. Rotated Component Matrix “Selection of groups of components”

	Component			
	1	2	3	4
halo effect	0,871			
ambiguous language	-0,782			
anonymous authority	0,680			
emotional resonance	0,880			
primacy effect		-0,813		
presence effect	0,467	0,677		
focus on pros			0,782	
exaggeration			-0,766	

The rotated matrix of components allows interpreting the results of the analysis.

The presented factor loads should be understood as correlation coefficients between variables and factors. So “halo effect” variable is strongly correlated with factor 1, namely, the correlation value is 0,871. “Ambiguous language” variable is strongly correlated with factor 1 (-0,782). “Anonymous authority” variable is also correlated with factor 1 (-0,680). “Emotional resonance” variable is strongly correlated with factor 2 (0,88). “Primacy effect” (-0,813) and “presence effect” (0,677) variables are correlated with factor 3. “Focus on pros” (0,782) and “exaggeration” (-0,766) variables are strongly correlated with factor 4. In most cases, the inclusion of a separate variable in a single factor carried out on the basis of the correlation coefficients is single-valued. In exceptional cases, for example, as in the case of the presence effect variable, the variable can refer to two factors at the same time.

Options of influencing factors on respondents can be attributed in the following order to four factors.

Factor 1:

- “halo effect”;
- “ambiguous language”;
- “anonymous authority”.

Factor 2:

- “emotional resonance”;
- “presence effect”.

Factor 3:

- “primacy effect”;
- “presence effect”.

Factor 4:

- “focus on pros”;
- “exaggeration”.

Factor 1 includes manipulations based on the stereotype that famous people, leaders are perceived as successful and intelligent in almost all spheres. This in turn increases the credibility of their words and actions. “Ambiguous language” also belongs to this factor. It happens due to the fact that such a disadvantage as the imperfect speech of many famous people is compensated by some advantages of these people.

Factor 2 includes manipulations based on overcoming protective barriers to obtaining unwanted information. “Emotional resonance” manipulation is aimed at the formation of certain emotions. “Presence effect” manipulation also affects the unconscious of the individual, causing heat feelings and emotions. As a result the censorship of the psyche is weakened.

Factor 3 includes primacy effect manipulation and presence effect manipulation. The essence of primacy effect manipulation is based on the specifics of our psyche to take on faith the first received information. The emotional component of “primacy effect” manipulation enhances the effect of “presence effect” manipulation.

Factor 4 includes manipulations based on the inability of the individual’s psyche to react properly and instantly on a big amount of distorted information.

The Scree plot of cognitive manipulation (Figure 1) shows that after the first four components the eigenvalues are less than 1.0. This again supports a four-component solution.

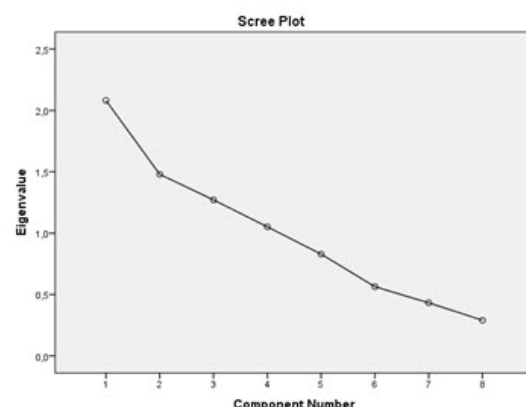


Figure 1. Scree Plot of cognitive manipulation

4. DISCUSSIONS

The research aimed to examine cognitive manipulation in Internet resources (social networks, blogs) and identify the manipulations that have the greatest impact on students.

According to the results presented in Table 2 “halo effect” manipulation has the greatest impact on students. It is based on psychological property to attribute talents in all spheres to the person talented in one area. But there a lot of examples when people who do perfectly one thing are helpless at doing other things. It means that the majority of students have stereotypes and poor forecasting ability.

The second manipulative technique influencing greatly on students is “ambiguous language”. Usually recipient hesitates to ask again the meaning of a term or doesn’t have such an opportunity and it gives the manipulator the opportunity to turn the situation in the right direction, allows him to be in an initially advantageous position and achieve the necessary result.

The third effective manipulation is “anonymous authority” manipulation. References to non-existing authority give the information certain reliability.

The fourth effective manipulation is “emotional resonance”. It means that the majority of the students trust their emotions without critical analysis. The technology of this manipulation is based on such a property of the individual’s psyche as emotional infectability. It is known that in the course of life a person builds certain protective barriers from obtaining undesirable information. But this becomes possible when protective mechanisms are removed. It’s possible to overcome the barrier of the mind causing an explosion of emotions in the individual.

The fifth place belongs to “primacy” manipulation. The essence of this manipulation is based on the property of our psyche to take on faith the first received information. Even the fact that later we can get more reliable information, often does not exclude the fact of subconscious distrust of it. So, later it is quite difficult to change the formed opinion (Zelinsky, 2014).

The “presence effect” manipulation is on the sixth place among the most influential. Such a great influence is explained by the influence on the unconsciousness. The information supplied in advance by manipulators is offered to the audience by pseudo eyewitnesses who pass it so sincerely. This falsified

information often reaches the effect on the audience, because it affects the unconsciousness of the individual. As a result the censorship of the psyche is weakened and it accepts the information without determining its false essence.

In “focus on pros” manipulation the idea of manipulators is promoted by focusing only on the pros. In this case students don’t take into consideration the fact that each phenomenon has its pros and cons. Critical analysis of information is required.

“Exaggeration” manipulation is based on the presentation of the material as sensational. As a result the individual’s psyche does not have time to react properly, an unnecessary excitement is created, and it reduces the criticality. Therefore the manipulators reach the expected result. The received information falls into the unconscious of the individual. Then it affects the consciousness, distorting the meaning.

The effectiveness of manipulation is determined by many factors: age, gender, life experience, leading representative system, emotional state, health, etc. In our opinion the effectiveness of manipulation is determined by the spiritual maturity of people, their willingness to be deceived (Zhdanko, 2018).

Young people are often not successful in relating actions with their motives and consequences. Their emotional and cognitive spheres are not stable. It also increases the manipulative effect.

The unawareness of the essence of manipulation also increases the risk of being manipulated. So it’s important to be aware of the laws of manipulation in order to fight against manipulation.

The degree of manipulation impact also depends on a person’s leading representative system. Academician V. M. Kandyba (Kandyba, 2004) notes that depending on the dominance of the activity of the left or right hemisphere of the brain, a person subconsciously or unconsciously thinks and realizes everything that happens in the external or internal reality according to one of three main internal psychophysiological (representative) systems:

1. Reality is perceived mostly through words. Verbal and logical thinking dominates.
2. Reality is perceived mostly through visual images. Eidetic thinking dominates.
3. Reality is perceived through the senses and kinesthetic feelings.

The success of manipulation is guaranteed when the manipulated believe that everything that happens is natural. So, manipulation

exists in a false reality where its presence is not felt. This false reality is created by the media, in particular by Internet. Very often others opinions are perceived by people as their own conclusions. The main condition for successful manipulation is the lack of critical processing of information.

Thus, an important step in the fight against manipulation is the formation of critical thinking. Critical thinking is "a mental activity that result in an ability of a person to process information, namely, to interpret, analyze, evaluate, formulate conclusions, prove, and be self-reflexive about his own mental activities» (Facione, 2013: 5). A developed critical thinking allows encoding and decoding information. We support D. Kloosters' idea who distinguishes five main features of critical thinking:

- critical thinking is an independent thinking;
- critical thinking starts with the problem statement;
- critical thinking is characterized by convincing arguments;
- critical thinking is a social thinking;
- critical thinking is a self-reflexive thinking (Klooster, 2001).

Often our prejudices prevent us from thinking critically. Critically thinking person is not someone who has no prejudices, everyone has them, but someone who is aware of his prejudices.

Age features of psychological and pedagogical development of students contribute to the development of critical thinking, namely, the reflection of own life path, self-realization, self-expression, the ability to hypothetical-deductive reasoning, that is, the ability to highlight and study the individual properties of a complex subject, push and test hypotheses about their qualities, properties, and relationships. At this age, students develop patterns of behavior and value orientations.

Dealing with various kinds of messages teachers and students should remember about following rules that will help to form critical thinking:

- messages create "reality" in a certain way and with a certain purpose;
- each of us interprets messages in his own way: perception and interpretation of messages depend on such factors as gender, age, education, culture, education, life experience, etc.;
- messages have a certain ideology and value system;
- messages have their own way of en-

coding information.

5. CONCLUSIONS

The author of the study made an attempt:

- to reveal cognitive manipulations (emotional resonance, anonymous authority, focus on pros, presence effect, halo effect, primacy effect, exaggeration, ambiguous language) and the frequency of their use in Internet resources (social networks, blogs);
- to describe cognitive mechanisms of manipulations;
- to identify the manipulations that have the greatest impact on students.

In the light of the results obtained from the study, recommendations for teachers aimed at reduction of the impact of manipulative techniques were suggested:

- teach students that each message (printed, visual, audio) is created with a certain purpose;
- teach students that each message has a certain ideology and value system;
- teach students to decode information using different types of analyses (semiotic, narrative, etc.);
- teach students that the interpretation of messages depends on such factors as gender, age, education, culture, education, life experience, etc.

Manipulation might be dangerous not only for a young persons' life but also for the future of the whole state. Teachers and family can help greatly in solving this problem.

This research contributes to the expanding of empirical knowledge in pedagogy, psychology, sociology.

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Conflict of interests

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CONTENT ANALYSIS OF MASTER'S DEGREE AND DOCTORATE THESES WHERE SOCIAL SKILLS TRAINING IS APPROACHED

Dr. Murat Tezer, Near East University, Atatürk Education Faculty, North Cyprus

E-mail: murat.tezer@neu.edu.tr

M.Sc. Şebnem Güldal Kan, Near East University, Atatürk Education Faculty, North Cyprus

E-mail: sebnem.guldal@neu.edu.tr

Dr. Behçet Öznacar, Near East University, Atatürk Education Faculty, North Cyprus

E-mail: behcet.oznacar@neu.edu.tr

Dr. Şeniz Şensoy, Near East University, Atatürk Education Faculty, North Cyprus

E-mail: seniz.sensoy@neu.edu.tr

M.Sc. Çilem Çaltıkusu, Near East University, Atatürk Education Faculty, North Cyprus

E-mail: cilem.caltikusu@neu.edu.tr

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ABSTRACT

Social skills play an important role in interpersonal social skills. This study investigates social skills training concept in general sense in articles, master and doctorate degree programs. Literature review was made in the research between the years 2010-2017. In this literature review process the concepts of publication type, subject area, publication year, research design, data collection tool, sample group, province and department concepts were discussed for social skills training. Study group meta-analysis technique was used in this research. Thirty-eight articles and the theses existing in 22 master's degree and 21 doctorate program in Turkish Council of Higher Education National Thesis Centre and Google Scholar were analysed.

Keywords:

higher education,

graduate education,

social skills training,

content analysis.

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1. INTRODUCTION

History of education is based on the beginning of human history. However, education directed a number of developments and changes within the time passed from the beginning of human history to the present day. Modern education within this process aims at the development of physical, emotional and social skills most appropriately for individuals and their society (Price, 2018). This situation caused an important development and change in higher education systems. Therefore, it be-

came necessary for higher education to have international demand, structure, and standards in globalization.

In recent years, training programs within the framework of harmonization with the European Union at higher education level too as well as radical changes and developments have been prepared again with the transition from traditional education into modern education. Postgraduate education programs are prepared by the institutions at universities and confirmed by the Council of Higher Education. Any change that will be made in each teaching phase of education will influence level programs also in other education levels at the same time (Creasy, 2018).

Human being is a social entity. Human being enters in interaction process by establishing social relationships with the environment. Social skills of those individuals who can establish healthy relationships within this interaction process are developed (Kansky, and Allen, 2018). It can be said that the most

Corresponding Author

Dr. Murat Tezer, Near East University, Atatürk

Education Faculty, North Cyprus

E-mail: murat.tezer@neu.edu.tr



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important factor in developing and sustaining the presence of human is the adaptation. Human being comes to the world as biological asset, adapts the environment and sustains his/her life (Samancı and Diş, 2014). Consequently, social development is an acquired behaviour complying social expectations as well as cognitive, affective and physical development considering the characteristics of individuals existing in development process (Ihmeideh, 2019). Development of social skills in the literature is a concept identical as social competence. Social competence is about the adaptation within the social structure. Social skills imply an individual to behave accordingly with the acts expected by the society (Ng, 2018).

Social skills started to develop after 1970s in childhood. The investigations about this field were supported with the object of the description of the children's social skills and evaluation of children's social skills deficiency, display of approaches suitable interference.

It is possible to reach the related definitions about social skills in the related literature review. Walker (1995) described social skills as specific strategies that were used in order to carry out the social duty that were given to common expectation. Social skills intended to maintain the communication and interaction, can be repeated, can be determined. As another definition of social skills, initiation and continuation of positive interactions by individuals with others are important acts (Bourne, Andersen-Warren and Hackett, 2018). Consequently, like several conceptions, as well social skills conception was attempted to be explained with different descriptions by different people. When the descriptions of social skills are examined, it is a generally accepted statement in all definitions that a person may respond appropriately giving the meaning of the counter party's behaviours in individual's relationships (Tomlinson, 2018). With this statement, social skills have an effective role of facilitate the communication of individual with other people (Jam et al, 2018).

Some children in social skills may encounter with several problems in their professional life and interpersonal relationships and emotional-behavioural matters throughout their life academically. According to Uz-Baş (2003), in the consequence of his work on the students that attending 4th and 5th primary school it is claimed that there is a positive and significant relationship between the children's

social skills and the school compatibility; there is a negative and significant relationship between the academic success and depression level. With this result, it is claimed that the social skills of the children that will gained at childhood period, the negative psychological emotions of children are effective on their academic success. Because of a conducted work, Chen (2018) determined that incompatible children in proportion to usual children have low-level problem solving and social skills. In order to eliminate these problems it is required to ensure integration of the children with the society increasing their social skill levels. The results of the work about the subject show that social skill trainings of the children are effective on their social skills acquisition (Paulus and Leitherer, 2017).

It is important to develop effective and efficient programs and appropriate learning methods in social skills training. Teaching of the game applied in early childhood period is reflected into the development of social skills of children is emphasized in the study conducted by Pavão et al, (2019).

Supporting social skills in early years of life influences the development of behaviour that an individual will exhibit (Miller et al, 2017).

Veziroglu-Celik and Acar (2018) stated that early years of life are very critical in terms of designing cognitive, personal and social behaviours. If the children fall behind the social development living in crises from their birth to 12 years, solving problems, acquiring social skills like dealing with problems, developing self-reliance and self-discipline are getting harder for the children. The early childhood is an appropriate period for children to learn social skills in terms of social adaptation in future personal development. This period also supported social skills that children developed over problematic behaviours (Ahn, Byun and Kwon, 2017).

Human being is a social entity in nature. Individuals cannot sustain their life by only meeting their physical needs out of their overall needs. They sustain their life for meeting their needs such as safety, respect, love, etc. that are provided in upper steps of Maslow's pyramid. People feel the need of sharing their emotions, thoughts and expectations throughout their life. In order that this could be realized effectively, it is directly related to the power of individuals' social skills (Samancı and Diş, 2014).

In this research the studies about social skills training are analysed in terms of publi-

cation type, subject area, publication year, research design, data collection tool, sample group, province and department. These studies are tried to be revealed in regard of which subjects they are concentrated around. In this direction, the study makes a significant contribution to the literature revealing how the studies follow the social skills training within a period of eight years approximately.

2. MATERIALS AND METHODS

The research model, data collection and data analyses of the current study are dealt in parallel with the objectives. In this study qualitative data analysis method is used which is thought appropriate to our objectives. Because the content analysis is to bring together the data similar to each other under certain conceptions and themes, and to organize and interpret them in such a way that a reader could understand them (Yıldırım and Şimşek, 2013). The content analysis is a systematic, replicable technique that can be summarized with smaller content categories of a text, which is based on certain guidelines.

The theses analysed in this research are restricted with the dissertations that are accessible in PDF extension as of 13th November 2017. from the National Thesis Centre of the Council of Higher Education. This working group consists of 22 Master's Thesis, 21 Doctoral Thesis and 38 articles. In addition, the thesis that are written only in Turkish are included in the research in respect of 13. November 2017. with reference to "Social Skills Training" code concept. Totally 43 thesis are reached with the scanning belonging to 2010-2017 conducted in Turkish Council of Higher Education National Thesis Centre (YOKTEZ) Head Office. The articles analysed in research include 38 studies. Following parameters are used in restricting research articles:

1. Google academic data is used in order to determine research articles.
2. The articles, which are published only between 2010-2017. years, are analysed in the research.
3. The articles, which are written only in Turkish and published in national peer-reviewed journals, are analysed.

Totally nine questions were included in analysing totally 81 studies regarding Social Skills Training (SST) that were included in the sample of this research. Each of the questions is evaluated as a "theme" for the content analysis instruction used in the research. The

questions located in content analysis instruction are given below.

1. What is the distribution of studies related to SST in respect of publication type?
2. What is the distribution of studies related to SST in respect of the subject area?
3. What is the distribution of studies related to SST in respect of publishing date?
4. What is the distribution of studies related to SST in respect of the research design?
5. What is the distribution of studies related to SST in respect of the data collection tool?
6. What is the distribution of studies related to SST in respect of the data solution?
7. What is the distribution of studies related to SST in respect of sample group type?
8. What is the distribution of studies related to SST in respect of the provinces?
9. What is the distribution of studies related to SST in respect of the department?

In this study totally 81 studies which were subjected to the content analysis were read several times, themes were formed for 11 questions in the guidelines of content analysis and encoded one by one. The data were encoded twice independently at two different times by the researcher in order to provide the indoor consistency (reliability) in coding. The second coding was conducted after two weeks upon the first coding. Later the two codes were compared with each other and calculated by applying the formula ($\text{Reliability} = \frac{\text{Consensus}}{\text{Consensus} + \text{Divergence}} \times 100$) of Miles & Huberman (1994). The conformity between the two coding was calculated as 100% in the reliability study that was put into practice specific for this research.

3. RESULTS

In this department the data obtained related to the themes questioned with nine questions in content analysis instruction are presented into tables.

Table 1. The Distribution of Studies Related to SST in Respect of Publication Type

Publication Type	F	%
Master's Thesis	22	27
Doctoral Thesis	21	26
Research Article	38	47

Table 1 shows the distribution of studies

related to SST in respect of publication type. As indicated in Table 1, 22 (27%) of the total 81 studies were conducted in the master's degree level, 21 (26%) of them were doctorate level and 38 (47%) of them were in the scope of research article. This standing shows that there is a requirement to multiple researches at doctorate level with regard to SST.

Table 2 shows the distribution of studies related to SST in respect of subject area. According to Table 2, totally 21 different topic studies have occurred related to SST. The subject areas in which the most studies are done are respectively: (i) SST in primary education social skills (30%), (ii) SST in pre-school social skills (21%) and (iii) SST in the family (11%). The subject areas in which the least studies are done are: (i) Social skills in secondary education, Social Skills in Medium education students, Social skills in harmonized class, Social skills in life sciences, Social skills in social science lesson, Social skills in the school, Social Skills in universities, Social skills of school psychological counsellors in problem solving, Social skills in broken families, activity-based Social Skills, Social skills in Latin dances, Social skills in social concern, Social skills in hidden curriculum, Social skills in primary school management (1%) Among the 81 studies examined, finding only one study in these subject areas shows that there is a need to work more in these areas.

Table 2. The distribution of studies related to SST in respect of the subject area

Subject Area	F	%
SST in pre-school education	15	21
SST in primary education	21	30
SST in secondary education	1	1
SST in the family	8	11
SST in autism spectrum disorder	4	6
SST in gifted students	3	4
SST in people with mental disabilities	2	3
SST in harmonized class	1	1
SST in life sciences	1	1
SST in social science lesson	1	1
SST in the school	1	1
SST in universities	1	1
SST of school psychological counsellors in problem solving	1	1
SST in broken families	1	1
Activity based SST	1	1
SST in Latin dances	1	1
SST in social concern	1	1
SST in hidden curriculum	1	1
SST in primary school management	1	1
SST in nursery class	4	6

Table 3 shows the distribution of studies related to SST in respect of publishing year. According to Table 3, study findings about totally eight publishing year is delivered related to SST. The years of publication in which most of the work is done are respectively as follows: The highest three distribution of publishing date of SST are 23% in 2015, 16% in 2010 and 15% in 2013. Distribution of the least publishing year is 6% in 2017.

Table 3. Distribution of studies related to SST in respect of the publishing year

Publishing Year	F	%
2010	13	16
2011	8	10
2012	7	9
2013	12	15
2014	9	11
2015	19	23
2016	8	10
2017	5	6

Table 4. Distribution of studies related to SST in respect of the research design

Research Design	F	%
Relational Survey Model	9	11
Survey Model	15	19
Quantitative	21	26
Qualitative	10	12
Mixed	11	14
Descriptive	3	4
Experimental	21	26

Table 4 indicates the distribution of studies related to SST in respect of the research design. According to Table 4, 7 research design findings that were used in the studies regarding SST were obtained. The most frequently used research designs are respectively as follows: Experimental (26%), Quantitative (26%), Survey (19%). The least used research design was descriptive one (4%).

Table 5. Shows the distribution of the studies related to SST in respect of data collection tool.

Data Collection	F	%
Nominative Well-Being Scale	1	1
Social Skills Scale	18	23
Interview Form	5	7
Social Skills Evaluation Scale	17	21
Self-Conception for Children	1	1
Social Skills Inventory	5	7
Personal Information Form	14	18
Ankara Development Inventory	1	1
Pre-school Social Behaviour Scale	5	7
Child and Parents Relationship Scale	1	1
Self-Control Ability	1	1
General Self-Efficacy Scale	1	1
Social Physics Anxiety Inventory	1	1
Being Satisfied with Physical Points	1	1
Main Characteristics Scale	1	1
Gilliam's Autistic Disorder Scale	1	1
Academic Success Test	1	1
Social Focus Grouping Scale	1	1
Social Values Scale	1	1
Assessment of Mother Curriculum	1	1
Social Acceptance Scale	1	1
Walker-McConnell Social Competence and Adaptation to School Scale	1	1
Rosenberg Self Esteem Scale	1	1

According to Table 5, totally 23 data collection tools were used in the studies regarding SST. The most frequently used research designs are respectively as follows: Social Skills Evaluation Scale is 23% social skills evaluation scale is 21% and personal information form is 18%. Child and Parents Relationship Scale, Self-Control Ability, General Self-Efficacy Scale, Social Physics Anxiety Inventory, Being Satisfied with Physical Points, Main Characteristics Scale, Gilliam's Autistic Disorder Scale, Academic Success Test, Social Focus Grouping Scale, Social Values Scale, Assessment of Mother Curriculum, Social Acceptance Scale, Walker McConnell's

Social Competence and Adaptation to School Scale, Rosenberg Self Esteem Scale were used as the least data collection tools (1%).

Table 6. Sample groups distribution of the study regarding SST

Sample Groups	F	%
Mothers	3	4
High school students	1	1
Pre-school teacher	2	2
Classroom teacher lecturing at primary school	1	1
Adolescents	1	1
Students not dancing	4	5
Primary school students	24	30
Primary school administrators	1	1
Students with mental deficiency	1	1
Special training teachers	1	1
Teacher candidate	2	3
Pre-school students	40	50

Table 6 shows the sample group distribution of the studies related to SST in twelve types. While the pre-school (50%) program was mostly used in the sampling of SST, the sampling of the studies regarding SST the least one (1%) was used in in content analysis with primary school administrators, students with mental disorders, teachers of special training.

Table 7. Distribution of the study according to provinces of Turkey regarding SST

Provinces	F	%
Ankara	16	19
Mersin	2	3
Istanbul	18	22
İzmir	12	14
Gümüşhane	1	1
Konya	4	5
Afyon	5	6
Manisa	1	1
Elağz	1	1
Bolu	1	1
Malatya	1	1
Erzurum	1	1
Tokat	1	1
Edirne	1	1
Kayseri	2	3
Uşak	2	3
Adana	3	4
Sivas	2	3
Çankırı	2	3
Kahramanmaraş	2	3
Muş	2	3
Denali	1	1

Table 7 indicates the distribution of the studies regarding SST in twenty-four different provinces. The most widely used distribution is Istanbul (22%) in SST, whereas the least used ones are Mersin, Gümüşhane, Konya, Manisa, Elazığ, Bolu, Malatya, Erzurum, Tokat, Edirne and Denizli (1%) regarding SST.

Table 8. Departmental distribution of the study regarding SST

Department	F	%
Educational sciences	5	6
Primary education	21	26
Institute of social sciences	5	6
Psychology	7	9
Child development and home management	5	6
Physical education and sports teaching	4	5
Recreation	4	5
Education programs and teaching	3	4
Teaching for the blind	2	2
Special training	7	9
Fine arts	2	2
Psychological Counselling and Guidance	4	5
Child development and education	12	15

Table 8 shows the departmental distribution of the studies related to SST in thirteen types. While the highest distribution among departments with regard to SST is in primary education with 26%, the least one is in teaching for blind and fine arts with 2%.

4. DISCUSSIONS

The content analysis, which was made with regard to social skills training, was investigated under the scope of master's thesis, doctoral thesis and articles according to publication type. Kahveci and Ataman (2017) conducted a study on the effect of consolidated behavioural consultation program on communication/social skills and inappropriate behaviours of blind autistic child. No actual resources have been encountered in recent years regarding social skills training. This can underline the importance in needing master's theses and doctoral these studies with regard to social skills training.

It can be concluded from the research

that the studies about social skills training in pre-school and primary school are cared more. In fact, it is possible to make research on special training and different educational levels regarding social skills training.

As a result of the content analysis made in relation to social skills training, it was concluded that social skills training was utilized between 2010. and 2017. predominantly in the database of YOKTEZ and google scholar. The social skills training can be enriched within 10 years through related actual resources.

Most of the studies used the experimental research design with regard to social skills training. It was concluded that the there were less studies in which both quantitative and qualitative ones were conducted together. Karateke and Ömeroğlu (2017) separated into two the examination of the effect of social skills training program that is applied to children having a potential of superior ability on the development of social skills. Validity and reliability studies were conducted for the Coloured Progressive Matrices test in the first chapter of the research, and the analysis of education program was made in the second chapter. Single grouped pre-test and post-test experimental design without control group were used in the study out of test models in the second chapter. However, it can be said that pre-test and post-test design was used frequently in experimental studies.

The social skills mostly used as data collection tool in the related researches regarding the relevant literature was rating scale. SPSS and content analysis were used in the research in analysing data. In the distribution of sampling related to social skills training, we can see most frequently pre-school and primary school students.

In the distribution of the study according to provinces regarding SST there are Istanbul and Ankara. In fact, we can say that most of the study regarding SST is distributed in the department of primary school.

5. CONCLUSIONS

As a conclusion, it was found that social skills training was utilized for the last seven years until 2017. predominantly. Most of the studies used the experimental research design with regard to social skills training. It was concluded that the there were less studies in which both quantitative and qualitative ones were conducted together. Content analysis were used in the research in analysing data.

In the distribution of sampling related to social skills training, we can see most frequently pre-school and primary school students.

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Conflict of interests

The authors declare no conflict of interest.

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PARENTING STYLE IN THE CONTEXT OF THE CONFLICT BETWEEN PARENTAL AND BUSINESS ROLES

Dr. Marina Matejević, University of Niš, Faculty of philosophy, Department of pedagogy, Serbia

E-mail: marina.matejevic@filfak.ni.ac.rs

MSc. Marija Đorđević, University of Niš, Faculty of philosophy, Department of pedagogy, Serbia

E-mail: djordjevic.marija990@gmail.com

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ABSTRACT

The paper discusses the connection between parenting style and the scope of the conflict between parental and business roles. For a parenting style, we used the concept of Dianne Baumrind (1966/2002), who defined three basic types of a parent-child relationship: authoritarian, authoritative and permissive. The problem of conflict is accessed through the theory of work-family conflict, the Greenhaus and Beutell model (Greenhaus and Beutell, 1985), according to which the impact of work on a family consists of three sub-dimensions: time-based conflict, strain-based conflict, and behaviour-based conflict. The survey involved 204 respondents – employed parents with at least one child aged 3 to 16 years. The results of the research have shown that the authoritarian and the permissive parenting style is accompanied by a more obvious conflict of parental and business roles, while the positive effect of employment is linked to the authoritative parenting style. Implications of the obtained findings show that business and family responsibilities enable parents to participate in multiple roles, that can be used to promote their growth and development and better functioning in the parental role.

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1. INTRODUCTION

The family is the essential environment that an individual belongs to, but, besides that, a job and performing of a certain activity, if we can say so, is another critical system within the framework of which is expected to have a specific role and one's personality realization. Certain relationships are established between these systems which can be functional or problematic. They can contribute to the creation of harmony in the life of an individual (Casper et al, 2007; Lapierre and McMullan, 2016, see also: Frone, 2003; Greenhaus and Powell, 2006; Sieber, 1974), or they can be a source of stress and destabilization of both parental and professional as well as personal functioning (Carlson, Kacmar and Williams, 2000; Frone, 2003; Greenhaus and Powell, 2006).

The requirements of modern society are becoming more and more complex regarding professional competence and, parallel to that, of quality parenting too. This, in turn, leads to a burden on the family system that needs to respond to both the demands of a profession and the needs of each member of the family system. The development of technology and the changing organization of work in contemporary society are bringing about consequences and the emergence of ever more conflicts in the work-family context.

This situation has prompted research curiosity for the emergence of numerous empirical research (this too) that deals with the examination of the relationship between parental styles and the conflict between parental and business roles.

1.1. Parenting style

The family atmosphere in which a child is growing up depends largely on parental behaviour towards a child and a parenting style. The family atmosphere can additionally be burdened by many parents' problems, including the conflict of family and business roles. The unhealthy family atmosphere can affect

Corresponding Author

Dr. Marina Matejević, University of Niš, Faculty of philosophy, Department of pedagogy, Serbia

E-mail: marina.matejevic@filfak.ni.ac.rs



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the psychophysical health of a child.

A parenting style means relatively consistent ways of parenting, which establish overall relationships with children. A parenting style is formed very early; it is a two-way process. A child adopts it as a model of parental behaviour, and a parent perceives a child's reaction as a positive or negative affirmation of parents' actions.

The concept of Diane Baumrind (Baumrind, 1966), who, relying on the Schaefer's model, defined three basic types of a parent-child relationship as authoritarian, authoritative and permissive is very important for our research. The authoritarian style is characterized by superimposed control, often not adjusted to the age of a child, with a relatively low warmth in relation to a child, and the most frequent outcome is high dependence and average social responsibility. Researches often show that parenting irritability is associated with increased externalizing and internalizing behaviour, poorer academic achievement, less pro-social behaviour and worse physical health (Low and Stocker 2005; Waylen and Stewart-Brown 2010). The authoritative style is characterized by relatively high control in the context of rationalism and feelings adapted to the age of a child. Authoritative parents exhibit general acceptance followed by high verbal communication, which most often has outcomes in successful adaptation, independence and social responsibility. Researches show that warm, affectionate parenting behaviours are associated with optimal child outcomes (Chao and Willms 2002; Landry, Smith and Swank, 2006). According to this concept (Baumrind and Thompson, 2002), the authoritative model is the most effective way of children upbringing in achieving a high level of individuality and belonging to a community. The permissive style is characterized by low control accompanied by low demands with the general acceptance of the child, which as a result often has low social responsibility and apparent independence.

A parenting style can significantly determine future development and behaviour of a child with far-reaching effects in adulthood too. Considering the importance of parenting styles, in this paper, we wanted to determine the connection between parenting styles and employment, that is, with the conflict of parental and business roles.

1.2. Theories on the relationship between work and family

Increased interest in this issue began with the massive hiring of middle-class women (World War II). In the meantime, as a result of research, several theories about the relationship between work and family were created. According to Zedeck (1987), some of them are:

1) Spillover theory – what happens at work is also spilt over to family life. In other words, if a person doing a tedious job can become lazy at work, and by newly acquired skills – avoid performing various family duties;

2) Compensation theory – there is an inverse relationship between work and family, and people invest themselves differently in these two. In one sphere people realize, do or get what they cannot in the other sphere;

3) The theory of segments – work and family are independent spheres, spatially separated, time-wise and functionally, and this enables their independent functioning. - family is a sphere of intimacy, affectivity, and intense interpersonal relationships, while work is a sphere which is impersonal, competitive, and rather instrumental than expressive;

4) Theory of instrumentality – work and family are connected in such a way that one of these spheres is always a means to achieve desired results in the other – for example, good business results lead to good family life, and they are the means to provide a different kind of life satisfaction;

5) The theory of conflict – these two spheres are generally incompatible, and success in one sphere inevitably leads or requires sacrifices in another sphere. This is because these two spheres have different norms and requirements;

6) Integrative theory – work and family are so intertwined that it is impossible to observe them separately.

One of the famous theories of the work-family conflict is the model of Greenhaus and Beutell (Greenhaus and Beutell, 1985). They define the conflict of working and family roles as 'a form of interrole conflict in which the role pressures from the work and family domains are mutually incompatible in some respect' (Greenhaus and Beutell, 1985, p. 77) and that the work-family conflict is two-way and multi-dimensional. The impact of work on a family and vice versa consists of three sub-dimensions: a time-based conflict (when

the demands of one role make it physically impossible to fulfill another role), a conflict based on strain, efforts of a person and characteristics of a person (when efforts that a person invests in one role prevent the fulfillment of requests which are expected by another role) and a behaviour-based conflict (when behaviours related to one role are incompatible with expectations related to the other, at the simultaneously existing role of an individual).

On the other hand, the so-called expression 'work-family balance' (Sieber, 1974) can be found in the literature more and more often. It is a matter of satisfaction and good functioning at both work and home with a minimum interrole conflict. Alternatively, as Wayne, Musisca and Fleeson (2004, p. 110) define, work-family relief (mood, received support, improved self-esteem and time management) 'occurs when participation in one role, leads to better functioning in another role'. This expression is based on a new hypothesis, that is, the involvement of an individual in multiple roles leads to a greater number of resources and opportunities that a person can use to promote their growth and development and better functioning in other domains of life (the so-called 'enlargement hypothesis'). So, as the family-work conflict can go in both directions, it is noteworthy that a job can also contribute to a family, as well as the other way round (Allen, 2012).

However, there is also a theory that emphasizes the role of personality traits on the work-family relationship. Thus, neuroticism is positively, and conscientiousness is negatively linked to the work-family conflict. Collaboration, openness to experience and extraversion positively influence the relaxation of work-family relationships (Wayne, Musisca and Fleeson, 2004).

1.3. The connection between parenting styles and conflict of roles

Studies that deal with the problem of employment of both parents show that, for example, there are better marriages in cases with husbands whose wives are employed but are not primarily career-oriented, but family oriented (Scarr, Phillips and McCartney, 1989). With the arrival of children, the need for man's engagement gets increased. Women's work outside home gives men an opportunity to increase involvement in the upbringing of children, and this option enhances the emotional well-being of husbands and their

increased closeness with women and children (Brayfield, 1995), indicating that both parents being employed has a positive impact on the family. The positive impact of employment is there also because two parents bring higher income than one, and the economic power of a family has increased, which significantly improves the quality and diversity of the upbringing environment.

However, there are also studies that show the other side of the employment effect. Poor quality jobs that expose parents to work overload and intensity, low autonomy and long hours have been linked to more punitive and harsh parenting behaviors (Perry-Jenkins et al., 2007), reduced emotional availability (Johnson et al., 2013); poorer quality family relationship with children (Cooklin et al., 2015) and less time together (Cooklin et al., 2015; Johnson et al., 2013).

Strazdins et al., (2006) pose three key pathways via which work-family conflict affects children's relational environments - through parent wellbeing, parent-child interactions, and inter-parental relationships. And, while parents with optimal mental health have capacity to provide warm, nurturing and stimulating environments for their children, parental stress and mental health difficulties are related with poorer quality parent-child interactions, with less warmth, more irritability and less consistency (Conger et al., 2002). Recent longitudinal research of work-family conflict and children's mental health (Dinh et al., 2017) showed that when parents move into work-family conflict and when it becomes chronic, children's wellbeing is adversely affected both directly and indirectly via increases in poor parent mental health, parenting irritability and marital dissatisfaction.

The socialist society, which was there in Serbia in the second half of the 20th century, promoted equality between men and women and, in that context, promoted the employment of women as a social value, which was further the case during the transition period. In this paper, we wanted to explore the scope of the conflict between parental and business roles in families in Serbia, since the transition and crisis in Serbian society can, in different ways, reflect on parental functioning and parenting styles.

2. MATERIALS AND METHODS

The aim of this research was to establish the connection between parenting styles and the scope of parental and business role conflicts. The general assumption we started from was that a high-level conflict between parental and business roles is associated with dysfunctional parenting. The sample of this research consists of 204 employed parents in Serbia who are married, with at least one child aged 3 to 16, because then there are big demands in the parental role, and we thought that they would best understand the particles from the research instrument and most objectively respond to them. Research subjects are biological parents, 46 male examinees (22.5%), and 158 female respondents (77.5%). Most of the respondents are with a university degree (64.2%), 34.8% with secondary school degrees and only one respondent with a primary school diploma. When it comes to types of work, the most significant percentage of respondents work with things (44.1%), slightly fewer work with people (37.7%), and the smallest percentage of respondents work with data (18.1%).

A descriptive method was used within which the scaling technique was used, and the following instruments:

The first scale – The scale of assessment of the level of conflict between the parental and business role was specially constructed for this research, and, within it, the Scale of Work/Family Conflict was used (Kopelman, Greenhaus and Connolly, 1983, pp. 198-215), which contains the following dimensions: conflict at work, family conflict and role conflict; then the short version of the Scale Work-Family Enrichment (Cooklin et al., 2015, pp. 266-277), which contains dimensions: work-family conflict and work-family enrichment; and a shortened and customized version of the Multidimensional Measure of Work-Family Conflict (Carlson et al., 2000, pp. 249-276) with three sub-dimensions: time-based conflict, strain-based conflict (personality traits included), and behaviour-based conflicts. The scale obtained in this way has five dimensions that are in line with the separated factors in the factor analysis of the instrument: Time Conflict, Strain Conflict, Positive Employment Effect, Conflict of Behaviour, and Conflict of Problem Solutions. The scale contains 20 particles (for example: The business schedule often leads to the problem of organizing my family activities; My work at my job has a positive effect on my children; When I come

home from work, I am often too exhausted to take part in parental responsibilities/activities with children...). The reliability of the Krombach alpha scale is 0.812.

The second scale – Parental styles assessment scale is the Parenting Styles and Dimensions Questionnaire (PSDQ - Robinson et al., 2001). The scale contains the dimensions of the authoritarian, authoritative, and permissive style and relies on the model of Baumrind upbringing styles. The dimensions of the authoritative style are connection, regulation and autonomy. The dimensions of the authoritarian style are coercion, verbal hostility and non-reasoning. The permissive style in the questionnaire has no particular dimensions. The scale contains 32 particles (for example *I am responsive to our child's feelings and needs, I use corporal punishment as a way of disciplining our child*). The reliability of the Krombach Alpha scale is 0.741.

Both scales are numerical scales, and the numbers in it are defined as follows: 1. Never, 2. Almost never, 3. Once in a while, 4. Very often, 5. Always.

This research was carried out during 2016. The research was conducted in Serbia, by transmitting the instrument of the research via a social network. To deal with the assessment scale, parents had enough time, i.e. as much as each one of them individually needed.

3. RESULTS AND DISCUSSIONS

Respondents are first given to assess how often they are confronted with specific situations related to work and family conflicts (20 claims). The results showed that the conflict between parental and business roles is not high in our respondents. The highest average values are in the items *Business, and family responsibilities make me a complete person* (AS = 4.49) and *Business and family responsibilities at the same time make me feel more competent* (AS = 4.26). About half of the respondents always found themselves in these claims.

The lowest average values are in the items - *I am often emotionally empty when I come home from work, which prevents me from contributing to my family* (AS = 1.89) and *With all the pressures on the job, when I come home, I am under too much stress to do stuff that fulfills me* (AS = 2.06). We see that these are items which relate to the emotional part of the conflict, that is, strain in the conflict of roles. However, more than a third of

respondents say that these types of conflicts have never existed, which is positive knowing the fact how possible conflicts may be unfavourable to parental functioning.

Such results only continue the series of results of those research that examine the relationship between work and family in a positive sense, as a type of relief, contribution ... Thus, relief can occur, for example, when participation in one role leads to privileges, resources, security from failure in another role and/or personal enrichment (Greenhaus and Powell, 2006; Sieber, 1974), which then lead to improved functioning in another domain. In addition, the employment of both parents requires equal involvement of parents in the family environment, resulting in the development of egalitarian attitudes with both parents. The prominence of the positive effects of employment is certainly linked to the problem of unemployment that is present in Serbia, which is why a significant number of families have existential problems, therefore, a salary more, that is, the increased economic power of the family significantly improves satisfaction and quality of upbringing.

To make it easier to notice the differences in the extent of the conflict between parental and business roles in relation to all the examined variables, it was necessary to make a factor analysis of the Scale of assessment of the scope of the conflict between parental and business roles. We have retained all 20 items divided into five factors that we have designated in accordance with the contents of the items themselves.

The first factor was named as the *Time-based Conflict* because this factor is saturated most by attitudes that point to separation, prevention, indulgence and lack of time which parents – instead of at work – would like to spend with their families. The second factor is referred to as the *Strain-based Conflict* because this factor is most saturated by attitudes that point to preoccupation, irritability, lack of relaxation and work-related stress. The third factor is called the *Positive Effect of Employment* because this factor is saturated with the attitudes that point to the feeling of completeness and competence due to the combination of work and parenting, a positive effect and better appreciation of the time spent with children. The fourth factor is referred to as the *Behaviour-based* because this factor is most saturated by attitudes that indicate behaviour which is effective at work which does not help to be a better parent or is counterproductive at home with children. The fifth factor is called

Conflict in Performing Activities because this factor is saturated by attitudes that indicate fatigue and problem of organizing family activities.

At the end of the presented and described factors, we conclude that out of five separate factors, three coincided with the already mentioned theory of the work/family conflict, which is the *Greenhaus and Beutell model (1985)* according to which the impact of work on family and vice versa consists of three sub-dimensions: time-based conflict, *strain-based conflict* (personality traits), and behaviour-based conflict.

Also, a factor called the *Positive effect of employment* can be compared with a construct well-known in the literature – the so-called ‘Work-family balance’ or ‘enrichment’ or ‘enhancement’ (Frone, 2003; Greenhaus and Powell, 2006; Sieber, 1974). It is a matter of satisfaction and proper functioning at work and at home with a minimum of interrole conflict.

These factors have been used as the dimensions of business and parental role conflicts in the continuation of the analysis.

In addition to this, respondents were asked to assess the extent to which they act in different situations, which is in line with certain parenting styles.

Table 1. Basic parameters of parenting styles

	Min	Max	AS	SD
Authoritarian style	1.00	3.83	2.11	0.59
Permissive style	1.00	4.75	2.81	0.77
Authoritative style	2.94	5.00	4.52	0.36

From Table 1 we can see that the average values of the authoritative style (AS = 4.52) are significantly higher than the average values of the permissive style (AS = 2.81) and the authoritarian style (AS = 2.11). This would mean that parents in the sample we examined prefer the authoritative (democratic) style of upbringing, followed by the permissive and the authoritarian style at the end. The most prominent presence of the authoritative style points to a positive emotional relationship between parents and children, that is, the connection, understanding and recognition of the child’s needs for autonomy.

The results are in line with the research by Matejevic, Todorovic and Jovanovic (2014) who, also on a sample of parents from Serbia, show that the authoritative parenting style is

the dominant parenting style in the families of the students examined. The results are in line with research in other countries, as well (Waylen and Stewart-Brown, 2010; Yusuf and Sim, 2017). Also, the researches (Todorovic, Matejevic and Simic, 2012) showed that all sub-dimensions of the authoritative style of upbringing (connection, regulation, autonomy granting) positively contribute to family communication and family satisfaction as a whole.

Table 2. Basic parameters of parental styles' dimensions

	Min	Max	AS	SD
Physical Coercion	1.00	4.00	1.76	0.61
Verbal hostility	1.00	5.00	2.85	0.79
Non-reasoning	1.00	3.67	1.72	0.66
Indulgence	1.00	4.75	2.81	0.77
Connection	3.20	5.00	4.73	0.36
Regulation	3.17	5.00	4.64	0.46
Autonomy granting	2.40	5.00	4.15	0.58

From Table 2, we can see the authoritarian style, the values of verbal hostility (AS = 2.85) are higher than for coercion (AS = 1.76) and non-reasoning (AS = 1.72). Among the items related to the authoritarian parenting style are: *I criticize a child for their behaviour to get better*, and *I criticize a child when their behaviour does not meet my expectations*, which indicates that parents are 'strict' primarily verbally, in the sense of criticizing and thus expressing dissatisfaction. Within this style, the lowest arithmetic mean values were claimed: *I slap children when they misbehave* and *I punish children by leaving them alone with little or no explanation*, which means that parents who use authoritarian style do not approach children by corporal punishment, but only by verbal expression of dissatisfaction, but with an explanation of their actions, therefore, respecting the integrity and personality of their child.

When it comes to the authoritative upbringing style, we can see that the values of connection (AS = 4.73) and regulation (AS = 4.64) are higher than the autonomy values (AS = 4.15). Among the items relating to the authoritative parenting style are: *I comfort my child and show understanding when they are upset*, and *I react to feelings and needs of my child*, which indicates that parents are aware of the needs of children for their proximity and

connection. However, within this style, the lowest arithmetic mean went to the statement *I allow my child to influence family rules*, which shows parents' unwillingness to comply with the wishes and needs of the child. These results indicate a parents' desire to establish closeness with children, but not to fully meet their child's need for independence and autonomy, or, the desire to develop child accountability is not sufficiently developed. However, the range of responses related to autonomy suggests that answers differ from those of young children and adolescents' parents. Moreover, in that sense, there are differences in relation to child's autonomy. The possibility of this interpretation is confirmed by the results of the research, also in Serbia (Matejevic, Todorovic and Jovanovic, 2014), according to which autonomy had a higher arithmetic mean than regulation, but the respondents in that research were parents of adolescents.

The permissive style has only one dimension, but in relation to the dimensions of other styles, we can see that the values of the permissive style, that is, the relaxation is lower than in others, except in relation to coercion and non-reasoning. Although we have concluded from the Table 2 that the permissive style is somewhat more representative than authoritarian, when the authoritarian style is analyzed in relation to special dimensions, we note that verbal hostility as a dimension of the authoritarian upbringing style is somewhat more present in relation to indulgence (permissive style).

We used Pearson's correlation coefficient to investigate the correlation between parental and business roles.

Table 3. The connection between the authoritarian parenting style and the conflict of parental and business roles

	Authoritarian style	(Coercion)	(Verbal hostility)	(Non-reasoning)
Time-based conflict	.211**	.286**	.073	.194**
Strain-based conflict	.178*	.143*	.134	.199**
The positive effect of employment	-.243**	-.225**	-.233**	-.145*
Behaviour-based conflict	.075	.147*	-.030	.087
The conflict in the performance of activities	.221**	.204**	.176*	.190**

*correlation at the level .05

** correlation at the level .01

We can notice from Table 3 that the higher coercion and non-reasoning in a parenting style are, the greater the time-based conflict is. These data are somewhat expected because when parents do not have enough time to dedicate to their family, they do not have time to explain their actions, as well as the reasons why a child needs to do something, and apply coercion as a way of communicating with a child.

Then, coercion and non-reasoning are higher the greater the stress-strain is. Moreover, this is somewhat logical, since emotionally fragmented and exhausted parents can often offer only that – a hostile attitude towards their children at those ‘crisis’ moments, although this is by no means justified.

When it comes to the positive effect of employment, a negative correlation is determined, that is, all the dimensions of the authoritarian parenting style of a parent are less high where the positive effect of employment is more present. Therefore, parents who feel more competent and complete due to the combination of work and family do not need to take an authoritarian attitude towards a child, to criticize or force them by slapping and oth-

er similar methods. These parents find many more successful methods of upbringing which are better for child’s development.

Also, the greater the conflict of behaviour is, the greater compulsion in the upbringing style of a parent is. This can be explained by problems some parents have when dealing with behaviour at work which cannot be transferred to their family. Namely, many parents are, in fact, workers who carry out tasks assigned ‘from above’ (by their boss, their director, or similarly), while their home becomes an ‘exhaust pipe’ and show their superiority by giving orders, and by corporal punishment of children.

In the end, the greater the conflict in the performance of activities is, the more all the dimensions of the authoritarian style are present in the upbringing style. A logical sequence can be – poor organization, then frustration and dissatisfaction, and hostile attitudes towards children.

Our results are in line with the opinion of some authors that when a mother tries to compete with a large number of business and family demands, that reflects to her concentration and attention so that she will experience a negative mood. Mothers who are dissatisfied with their role as an employed mother or who experience high role conflicts practice less effective upbringing styles because they do not have enough concentration to act differently. Parents can have negative reactions due to the negative perception of child’s behaviour by increasing control and punishment or avoiding interaction with a child, that is, a negative mood may also have an impact on rejection and punishment by parents (MacEwen and Barling, 1991). Cooklin and associates (2015, 2016) found that higher work–family conflict was independently associated with less warm, affectionate responding towards the child and more negative irritable interactions even when maternal sociodemographic characteristics, maternal mental health and child temperament were controlled. Recent research of firefighting and fathering (Shreffler, Meadows and Davis, 2011) showed that working more than 60 hours per week significantly predicted lower satisfaction with children’s behavior.

To investigate the connection between the permissive parenting style and the conflict between parental and business roles, we used Pearson’s correlation coefficient.

Table 4. The connection between the permissive parenting style and the conflict of parental and business roles

	Permissive style (indulgence)
Time-based conflict	.200**
Strain-based conflict	.133
The positive effect of employment	-.078
Behaviour-based conflict	.306**
The conflict in the performance of activities	.248**

** correlation at the level .01

From Table 4 we can notice that there is a statistically very significant connection between the permissive upbringing style and the dimensions – time-based conflict, the conflict of behaviour, and the conflict in the activities. The higher these dimensions of conflict are, the more present is indulgence in the parenting style.

Namely, parents who have a higher conflict of behaviour at work and in the family, actually do what they are required to do at work, but at home they do not have such demands from someone ‘from above’ and become inconsistent in children upbringing (threatening with punishment but not punishing them), and thus more often resort to indulgence, or apply the permissive upbringing style. They do not place themselves as an active agent responsible for shaping and changing child’s current or future behaviour, they are more responsive than they are demanding.

Due to a higher time conflict, the same as in the conflict in performing activities, when parents do not have time to deal with their children, inconsistencies and omissions occur again. Also, the feeling of guilty conscience, which is likely to occur here, can lead to excessive indulgence, with the thought that it can compensate for their frequent absence. These parents do not respect the principle of devotion that relates to the total physical, mental, and emotional engagement of parents during socializing with their child. They are not up to date with the needs and activities of a child to be able to respond promptly with an appropriate upbringing action, if neces-

sary. Our results are in line with research in the world (Perry-Jenkins, Repetti and Crouter, 2000) that show that, for example, mothers with high work-family conflicts withdraw from relationships with children, they can become depressed, set out less clear home rules, etc. Also, Borelli et al., (2017) conducted research on five studies of parents’ feelings of guilt regarding perceived negative impacts on their children that arise from addressing work over familial responsibilities. Results showed that the mothers with high work and family conflict and a high number of working hours reported significantly high levels of work and family - guilt, and this work and family - guilt was associated with higher parenting permissiveness.

To examine the correlation between the authoritative parenting style and parental and business roles conflict, we also used Pearson’s correlation coefficient.

Table 5. The connection between the authoritative parenting style and the conflict of parental and business roles

	Authoritative style (Connection)	(Regulation)	(Autonomy granting)
Time-based conflict	-.152*	-.178*	.032
Strain-based conflict	-.040	-.173*	.027
The positive effect of employment	.414**	.469**	.217**
Behaviour-based conflict	-.008	-.103	.145*
The conflict in the performance of activities	-.053	-.179*	.075

*correlation at the level .05

** correlation at the level .01

From Table 5 we can see that the more positive the effect of employment is, the more parents apply the authoritative style of upbringing. Therefore, there is greater connection, regulation and autonomy granting of parents in the upbringing style. It means that

parents, who are satisfied with their work, also convey a sense of satisfaction to the relationship with their children. Parents who thanks to their jobs do not have major existential issues have more energy and are more willing to deal adequately with their children. Satisfied parents design and organize better their time spent with children.

On the other hand, as the time conflict is greater, there is less presence of connection and autonomy in the parenting style. Logically, parents lacking time they can devote to their family, do not get to build a strong relationship with their children, in their relationship, there is less connection and trust and autonomy, and therefore they do not grant autonomy to a child either.

Furthermore, the greater Strain-based Conflict in the parenting style is, the less authoritative parents are to their children, more precisely, there is less connection between parents and children. The correlation is clear and logical – parents who are mentally disrupted due to a lot of duties at work and home have less power to devote themselves to creating a strong and healthy relationship with their child, resulting in less bonding in their relationship.

In the end, the greater the conflict in the performance of activities is, there is less authoritativeness in relation to children, that is, parents and children are less connected. Parents who have a problem with time organization and who are too tired to do the activities they love with their children, do not have enough opportunities to strengthen their relationship with children and create a relationship of affiliation and support.

The obtained results are in line with some research (Cooklin et al., 2015, 2016; Gursoy and Yildiz, 2007; Masa and Tyokyaa, 2016) which showed that the employment of parents, primarily a mother, positively affects the quality of the upbringing environment. Namely, it may be that mothers revalue the time that they do spend with their children when time is constrained by employment participation, and prioritize affection and consistency for their children. For instance, for some families, increased income might mean that some mundane and routine domestic tasks can be outsourced, alleviating stress. Alternatively, a satisfying, high-quality job conveys competence, optimism, motivation and self-esteem. These qualities are supportive for promoting parenting confidence and competence.

4. CONCLUSIONS

Summarizing the results, we conclude that there is a correlation between a parenting style and the conflict between parental and business roles, and this is a positive correlation between the scope of the conflict of parental and business roles and the authoritarian and permissive upbringing styles of parents and the negative correlation in relation to the authoritative style. The general assumption that a greater conflict of parental and business roles is associated with dysfunctional parenting, with the authoritarian and permissive parenting style of parents – has been confirmed.

It can be noted that in the context of transition and unemployment problems in Serbia there is a positive effect of employment. Business and family responsibilities make up complete people out of parents and make them feel more competent. Parents most prefer the authoritative (democratic) style of upbringing, followed by the permissive and the authoritarian style as the least preferred. Parents who feel the positive effect of employment do not apply coercion and verbal hostility within their style of upbringing, but they achieve connection, regulation and autonomy with their children.

However, the results of the research indicate the existence of parents who use forms of authoritarian and permissive styles of upbringing. We note, therefore, that some parents lack adequate communication with children. The results of our research indicate the necessity to educate parents, mostly in the context of parenting styles. There are many ways in which the state and the society can help families where parents have the problem of resolving work-family conflicts. Measures that reduce the conflict of family and work relations are those measures that help families and reduce family and work stress. Those measures can fall into immediate social intervention and social policy measures, measures to reduce stress at a workplace, and social measures to support families externally or measures that help strengthen families from within.

This research opens up new research opportunities. Namely, research can focus on the problems of conflict with parents of children of different ages, because it is possible that there is a difference between parents of children of pre-school age, younger grades of elementary school and older grades. This would include sample expansion and the representation of all categories in particular. This research would answer the question of whether the level of parental and business

roles conflict is most reflected in dysfunctional parenting when children are small, i.e. pre-school age (which could be a hypothesis of research). Also, since we have noted that parenting styles and the conflict between parental and business roles in Serbia are rather connected, we have not identified what is the cause of what, that is, what is the direction of influence or what other factors influence those mentioned variables. In addition, our findings point to the need for future research to focus on the positive effects of having multiple roles and to study how such positive effects can be achieved. All this would contribute to clarifying this problem from several aspects.

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Conflict of interests

The authors declare no conflict of interest.

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OPTIMUM VIRTUAL ENVIRONMENT FOR SOLVING COGNITIVE TASKS BY INDIVIDUALS WITH AUTISM SPECTRUM DISORDERS: THE QUESTIONS AND METHODS OF DESIGN

Dr. Tatiana Yurievna Bystrova, Cultural Studies and Design Department, Ural Federal University, Russian Federation

E-mail: taby27@yandex.ru

Dr. Ludmila Valerievna Tokarskaya, Psychological Department, Ural Federal University, Russian Federation

E-mail: liydmil@mail.ru

Dr. Darko B. Vuković, Russian State Social University (RGSU), Faculty of Economics, Moscow &

Perm National Research Polytechnic University, Perm, Russian Federation

E-mail: vdarko@hotmail.rs

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ABSTRACT

The number of people with autism spectrum disorders (ASDs) is growing in Russia and the world at large. It is important to find ways to diagnose and correct the work with such individuals. There is much evidence that children with ASDs often exhibit pronounced communicative difficulties, problems in establishing visual contact etc. Specialists working with this category of patients face serious difficulties in trying to find effective ways to interact with them. The use of virtual reality environments that have the necessary parameters, determined theoretically, experimentally, and practically, can mitigate these difficulties. The study has shown that, at present, there is much experience in the field of virtual reality application while working with children who have ASDs. Nevertheless, there are several unspecified issues. First, as far as the perception of virtual reality by people with ASDs are concerned, it is especially important to study them. Of much importance are the peculiarities of their states associated with virtual reality, while solving cognitive tasks during diagnostic and corrective work stage, as well as in obtaining education. It is necessary to choose the right methods of visualization and interaction in a virtual environment. The focal point of the article is to justify the project of creating a virtual reality for the diagnosis and socialization of individuals with ASDs, i.e., its structure, stages and methods. In addition, the work is of interest in connection with the research of the phenomenon of presence in virtual reality.

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1. INTRODUCTION

There is the growing body of literature which indicates that the number of people with autism spectrum disorders (ASDs) in Russia and the world currently stands at 1.5%, and according to some data, one in 68 children

suffers from these disorders (Kim Y. S., et al., 2011). The questions of their adequate diagnostics and the subsequent effective socialization, including inclusive educational process are of much importance. ASDs are the group of complex deficiencies in mental development, characterized by the violation of the ability to social interaction, communication, and inadequate stereotyped behavior. The peculiarities of individuals with ASDs include the violation of social contacts, difficulties in recognizing visual objects, the violation of verbal and non-verbal communication, etc.

By today, Russian Federation has created a system for determining the educational route of a child with ASDs. The system emerges from a comprehensive survey within

Corresponding Author

Dr. Tatiana Yurievna Bystrova, Cultural Studies and Design Department, Ural Federal University, Russian Federation, E-mail: taby27@yandex.ru



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the framework of psychological, medical and training commission (the PMTC). The body of specialists, i.e., a psychiatrist, a teacher-psychologist, a speech therapist, a social teacher, and a speech pathologist determine children's state of higher mental functions and speech. They also specify the degree of mastering knowledge, abilities and skills and provide recommendations which designate educational organization.

The traditional examination procedure of the PMTC usually lasts from one to one and a half hours. It includes the main stages which are as follows: the acquaintance with the child, the study of the documents, the health screening itself. At the final stage the commission body makes up conclusions, provide recommendations and fills out the standard form of experts' opinion report. The individual with ASDs, as a rule, does not have time to adapt to the new premises and people, to maintain productive contacts with them. This often leads to the fact that the child can show much lower results comparing with the familiar and / or more comfortable conditions for him.

One of the main objectives of the study is to clarify the specifics of cognitive tasks for individuals with ASDs. There is much evidence that in the clinical picture of specific cases of ASDs there are often signs of other kinds of mental developmental disability, most often accompanied by mental retardation (see Morozov S. A., Morozova T. I. and Beliavskii B. V., 2016). Interestingly, "nowadays there is no single point of view on the features of intellectual development of children with ASDs. Experts express different opinions which sometimes are opposite" (Morozov S. A., Morozova T. I. and Beliavskii B. V., 2016, p. 11). A key theoretical aspect of the research is to clarify this issue. The practical goal lies within the domain of the survey and the evaluation of results (Morozov S. A., Morozova T. I. and Beliavskii B. V., 2016).

Solving the problems of diagnosis and socialization of people with ASDs will allow the presentation of tasks in a specially created virtual environment. Our target is to determine the optimal parameters of this virtual environment. On the one hand, this virtual environment will help reduce the level of stress that traditionally arises during diagnostics, and, therefore, make it more accurate and effective. On the other hand, by changing the quality of the virtual environment, determining its optimal parameters in accordance with the peculiarities of perception and behavior of a specific child with ASDs, it is possible to achieve

the faster and more profound learning of the material during the training process, as well as the formation of communication skills. Consequently, these actions correspond to the trends of modern inclusive education, which implies the individualization of educational trajectories when individuals with ASDs are included in the overall process of education and socialization.

2. MATERIALS AND METHODS

The presence effect can be studied using the methods which are as follows:

- A subjective method based on self-reporters or questionnaires. It provides a comparison between the parameters of two virtual environments among themselves or the parameters of the virtual environment compared with the real environment, etc.;

- A physiological method, with the help of which the presence of physiological reactions to the image of a dangerous environment is recorded. E.g., a view from a great height to the abyss. Presence is determined indirectly, through a reaction like that which would appear in the real world;

- A psychophysiological method, which serves to identify the features of the perception of virtual environment, as well as the nature of the influence of virtual media on the addressee: 1) test questionnaires for determining the profile of functional brain asymmetry (Arshavskii V. V., 1998; Nikolayeva E.I., 2003; Bragina N. N. and Dobrokhotova T. A., 1988). The definition of the situational emotional state with the help of M. Lusher's projective test; 2) a direct inquiry method; 3) instrumentation techniques, i.e., the analysis of perception with the help of the eye movement recording system (eye-tracker) RED500; a modified measurement technique for the description of human galvanic skin response by I. R. Tarkhanov, W. Ferre with the help of the professional computer polygraph «Diana»; electroencephalography (EEG) and event related potentials (ERP) analysis using the EEG-ERP-24/8 electro-encephalograph «Mitar-EEG-ERP-24/8».

The application of psychophysiological methods makes it possible to objectify the data obtained, to determine the leading regions of the brain when solving cognitive tasks in normal people and in individuals with ASDs. These methods help consider the problem of integrating information in virtual reality in comparison with ordinary reality, including

cases of virtual disease. The combination of oculography with EEG and virtual reality allows a comprehensive assessment of the processes of attention, visual perception, thinking in the experiment and in the ordinary environment among the individuals with ASDs and neurotypical users. It will also allow to model optimal learning environments through visualization.

- Behavioral, through which the presence is determined by the coincidence of behavioral responses of subjects with those that they would have in a similar situation in the real environment.

The experimental part of the study will be conducted on the basis of the brain laboratory and neurocognitive development of UrFU named after first President of Russia

B. N. Yetsin.

The sample will consist of two groups of subjects: the first will include individuals with autism spectrum disorders aged 18–25 years, numbering 20 people; the second group will include neurotypical individuals aged 18–25 years, also numbering 20 people. The experimental group will include only individuals with ASDs who have verbal communication skills, capable of providing answers to proposed cognitive tasks, as well as describing their states while in a virtual environment.

The choice of the age range is due, to the urgency and inadequacy of the issue of the education of persons with disabilities (HIA), and specifically with ASDs, in institutions of secondary and higher vocational education. In addition, the problem of vocational guidance and employment for this category of persons, and especially those with ASDs, is significant. At the same time, for teenagers with ASDs, preparation for work with the use of information technologies, including virtual environment tools, is of importance, so now there is already a positive experience of employment of people with ASDs, primarily in the IT sphere (e.g., SAP company, etc.).

3. RESULTS

Therefore, the main components of the proposed study aimed at the application of virtual reality for diagnosis and socialization of persons with ASDs will be as follows:

The stages of research

1. The design and development of special software tools and the study of cognitive functions of individuals with ASDs using virtual reality media.

2. The testing of a prototype adapted for people with ASDs, conducting experiments to detect the influence of the presence state on the solution of intellectual problems, both for ordinary users and for adolescents with ASDs.

During the study, it is planned to identify how virtual reality will be perceived by children with ASDs, e.g., neutral, as a pleasant experience, as a harmful experience, distracting from the performance of a cognitive task, or, as an experience, helping to focus on the cognitive task. It is also planned to clarify the specifics of the statements of individuals with ASDs in terms of their dictionary, the grammatical structure of their speech compared with neurotypical people.

Table 1. AR formats and children with ASD

Needs and characteristics of children with ASD	AR formats to meet the needs of the child with ASD	Hypothetical relationship of reality and AR, providing immersion (requires experimental verification)
Communicative difficulties	Using an intermediary character for communicating with other people; gamification of communication	50-50
Pursuit of monotony	Clarity of scenarios; reinforcement of repetitive script elements with recognizable visual signs	90-10
Concentration problem	The appearance of pop-up windows with visual and audible reminders	80-20
Motor disorders	Inclusion of small buttons in the most interesting games or exercises	90-10
Emotional vulnerability	Backgrounds and other colors that have a positive impact	80-20
The need for the right behavior models	Inclusion of models in scenarios of games connecting reality and AR; social stories	50-50

3. The analysis of the specifics of perception of images and features of cognitive tasks by persons with ASDs in virtual reality.

4. The development of proposals on the specifics of the psychological and aesthetic parameters of the virtual environment used in the diagnosis and training of persons with ASDs.

5. The modification of programs, the development of recommendations for designing a full-fledged environment for diagnosing and training individuals with ASDs using visualization tools, including virtual reality environments.

6. The development of proposals on technical, visual, psychophysiological and aesthetic parameters of the virtual environment for persons with ASDs, including the model of inclusive education.

4. DISCUSSIONS

4.1. The peculiar aspects of the mental development diagnostic of children with ASDs

The work on the examination of children with ASDs should be aimed at maximizing the opportunities and abilities of such children for successful inclusion in the educational environment of the training organization. In this regard, PMTC specialists face several challenges which are as follows:

- the specification of the mental state of the child and his potential in terms of obtaining the most accessible education;
- the definition of an educational route which must be adequate to the identified individual characteristics;
- the psychological and educational counseling of parents or children's legal representatives, training, medical and social workers. If necessary, the counseling should also embrace the employees of other institutions and departments representing the interests of the child in the family, the educational organization, the society at large;
- the monitoring of the learning dynamics and the level of social adaptation to the process of including the child in the educational environment;
- the development and implementation of preventive and corrective-developmental activities regarding the child with ASDs;
- the educational activities targeting the improvement of the psychological, instructional and medico-social culture of specialists and teaching staff.

The main aspects of conducting indepth diagnostics highlight key points which are as follows:

- The complex, comprehensive and holistic-dynamic assessment of developmental disabilities, including the inclusion of medical, psychological, training, and social features and developmental parameters of the child. The comprehensiveness and integrity of the assessment should consist in the systematic approach to mental development. It must also encompass the understanding of the developmental laws and their closest correspondence to the definition of the necessary conditions for the child's adaptation. The assessment must target the maximum social self-realization of the child, specifically, within the educational environment. The dynamic aspect of the assessment suggests the interrelated analysis of

the actual development of the child emerging from the anamnestic and follow-up data at different age stages, as well as the dynamics of changes of the child's state indicators directly during the process of the examination.

- The refinement and specification of peculiar educational conditions:
- The category of the adapted educational program (its content, level, focus, the degree of differentiation and individualization).
- The conditions for the implementation of the adapted educational program, i.e., the front-line teaching mode, an individual approach, a frontal individual method, as well as teaching at home. The conditions may also include mixed training which encompasses an individual mode of attending lessons, one or two or more days off per week in accordance with the evidence and in agreement with the administration of the educational institution. The conditions also include the features of introducing the child to the educational environment, i.e., the degree, volume and the form of inclusion.

The requirements for the procedure and methodological support of the diagnostic examination include a set of key aspects which are as follows:

1. The procedure and duration of the examination are determined by the age, individual and typological features of the child's development.
2. Parents must give written consent for a child examination.
3. It is desirable to conduct the child's examination in his / her usual environment, with the obligatory presence of parents.

The criteria for the adequacy of the procedure and the duration of the examination are as follows:

- a specialists' communicative contact with the child under examination;
- the availability, effectiveness, success of the child's activity in the survey process, considering the necessary assistance measures;
- the possibility of the "self-compensation" of the child's condition or, if necessary, the termination of the examination if there are severe psychosomatic, neurodynamic, neurotic, psychopathic or psychotic disorders during the examination;
- the parents or child's legal representatives' confidence in the examination specialists. The parents must be willing to accept specialists' conclusions and follow their recommendations.

In the situation of conflicting opinions of specialists regarding the assessment of the child's condition and recommendations for the development of an adapted educational program, compromise solutions emerge. They target more favorable social conditions for the child. In these cases, we recommend the diagnostic periods of training, psychological, social, and legal support, as well as a dynamic observation in the process of repeated examinations. A child should be given a chance to use his backup capabilities.

It is necessary to note that the requirements should correspond to the methodological materials used during the assessment of psychological and training features of child development during the examination. First, there are requirements for the standard invariability of stimulant materials' techniques which are primarily visual. The main requirements for such diagnostic techniques are as follows:

- The methodology should have a sufficiently long period of approbation on modern children, including children with different types of deviant development;
- Its stimulus material should stay unchanged for a long time, as well as the technology of their presentation and the analysis of results;
- In connection with the need for an in-depth examination, it is essential to use the methodology of a clinical approach. Consequently, the methodology determines the possibility of the flexible presentation of the stimulant material, i.e., it is desirable to use it during a training experiment. The latter makes it possible to assess such a nonspecific indicator as the child's learning ability;
- The methodology should have enough polyfunctionality, i.e., the ability to assess various indicators of the state and characteristics of the child's activity. At the same time the methodology should have a preferential orientation to certain parameters of a specific mental development sphere;
- The implementation of an age-based approach to the study of the child's mental development. The methodology should cover a sufficiently large age range. To achieve this goal its tasks should be designed as more complex. Simultaneously, the complexity of the methodology should cover several periods of childhood, e.g., from younger preschool to primary school age, etc.;
- The results obtained must have, first, qualitative, conditionally normative indicators that characterize modern children. For certain

methods, quantitative indicators are possible.

There are special principles which determine the diagnostic activity of specialists. They are as follows:

1. The construction of an examination hypothesis based on the holistic view of the child. The hypothesis must encompass the knowledge of various branches of psychology, pediatrics, child psychiatry, medical genetics, education science, including special correctional pedagogy;

2. The complete use of the algorithm for changing the diagnostic hypothesis in the light of the data obtained (Bayes rule);

3. The construction of the procedure or technology of the examination in accordance with the actual age and the peculiarities of the child's behavior. The procedure should correlate with the adult-child dyad;

4. The use of the methodical tools adequate to the goals and hypothesis of the examination, considering procedural features that allow obtaining multifactor (multifunctional) information due to the technology of presentation;

5. The analysis of the received data using the technologies of integrative results' evaluation, which gives the maximum information not only about the specifics of development and the formation of various functions and systems at the phenomenological level, but also allows to identify the complex and hierarchy of reasons leading to this development option;

6. The categorization of the actual child's developmental level with an access to the type and structure of the development. At this level it is important to reach the formulation of the conclusion, the definition of the probabilistic forecast of the development, which, in turn, will allow to develop an effective program for accompanying the child.

The assessment of a child's mental development is presented in the form of the following stages, which follow one another:

1. Anamnesis;
2. The formulation of the hypothesis of the examination regarding preliminary conclusion, clarifying and adjusting it in the process of work;
3. The procedure for examining the child using appropriate tactics and technologies adequate to the age and capabilities of this category of deviant mental development;
4. The system analysis of survey results, their comparison in accordance with the hypothesis;
5. The final formulation of the conclu-

sion, considering the results obtained. This stage includes the understanding of the mechanisms and ways that led to the observed features, the definition of a probabilistic forecast of development, the ways and methods of individual approach to the child, the methods and techniques of corrective-developing work.

Therefore, the assessment of the features of the ASDs child's mental development is designed to ensure adequate progress, education and upbringing in accordance with the identified features. This assessment has certain stages, it is provided with adequate tools, considering the child's age, and its characteristics. All these factors determine the design of the diagnostic procedure in virtual reality conditions.

4.2. The basic concepts of design and research work on the creation of virtual reality for the completion of cognitive tasks

Now we proceed to the definition of the terminological apparatus of work. It is an important stage, which ensures more effective interaction of specialists of various profiles. The main terms are as follows:

1. Virtual reality. This term denotes a special environment created by the computer with the help of special devices, i.e., a helmet, screens with illusion of three-dimensionality, etc. The created environment is perceived by a user as the real world in which he really is and does not observe it from the outside. The user interacts with it directly, the same way he interacts with the ordinary world. Virtual reality is an artificial environment that can detect the position and actions of users and replace or supplement the feedback they perceive, causing a person to sense a presence in the virtual world.

2. Virtual environment. The term "virtual environment" encompasses a specific computer visualization environment, which is created by special devices to solve a specific task. Experts outline specific characteristics of virtual environment which are as follows: a three-dimensional and often stereoscopic environment; the possibility of a view from within some space, the chance of immersion in the virtual world; the control over the visible part of the virtual environment; dynamism; a multisensory mode which provides information to several senses.

3. "The perceptual illusion of imme-

diacy" or "the sense of being there". These features provide the phenomenon of presence, which is opposed to seeing the image from the outside. At the same time, when experiencing presence, the user "forgets" about the machines that supply him with the images. Presence is impossible without immersion, which, depending on the interaction of technical means, creates a virtual reality with the senses of man. Immersion results in the involvement, determined by the content of the environment with which the person is currently working, and what is happening in it.

4. Immersion. The term "immersion" traditionally refers to the submersion of a person in a computer-generated world. Experts distinguish visual, auditory, vestibular (used mainly for simulators and games) and less common tactile immersion, depending on the applied technology.

Immersion arises when, due to the quality of the interface, the stimuli acting on the senses of the user come not from the real world but are created by the computer. The immersion can be complete, incomplete or absent.

A virtual environment designed for full immersion technologies is called immersive, as opposed to a non-immersive environment in which the sense organs of the user are not cut off from the real-world stimuli. It is assumed that in an immersive virtual environment, the user can sense the effect of presence.

5. Involvement. It is a psychological state experienced as the consequence of focusing on a consistent set of incentives or reasonably related actions and events. Involvement depends on the value that a person gives to stimuli, actions or events and can appear in any environment, regarding the variety of activities or events.

4.3. The development of ideas about virtual reality

The concept of virtual reality appeared at the turn of the 1980s and 1990s, when software and hardware environments created for aviation training devices and simulators began to be used in various types of research, computer imaging, education, and games and entertainment.

In the 2nd half of the 1990s, work is being done to exploit the possibilities of virtual reality in medicine and psychology. Virtual reality was suggested to be used to overcome various phobias and dependencies (see Strickland D., et al., 1997). In this case, virtual en-

vironments had the relatively poor quality of graphics and interfaces, but a quick immersion into the virtual world and the presence of such states, like presence, allowed to receive interesting results.

At the same time, the first publications on the use of virtual reality in autism began to appear, although at first all results were limited to an analysis of the possibilities of virtual reality (Strickland D., 1997).

To date, there is a considerable body of literature describing the use of virtual reality to help people with ASDs (Averbukh V. L., et al., 2014; Wang M, Reid D., 2011; Lahiri U., et al., 2013; Kuriakose S., Lahiri U., 2015; Didehbani N., et al., 2016). In general, publications describe the methods of using virtual reality for children and adolescents with ASDs. In several papers, the results of experimental studies are presented, e.g., Wang M., Anagnostou E. (2014). They describe the use of natural interfaces within virtual reality environments. At the same time, it is necessary to note that there is the insufficient study of the imagery of visual objects, the limited goals set for developers and researchers.

Of much importance is the fact that the professor of Oxford University Steven Chance (PhD) organized a research group "Neuroanatomy and Cognition Group" at the Department of Clinical Neurobiology. Their projects are devoted to the study of cognitive and psychiatric disorders and comparative evolutionary neurobiology. The group studies the interrelation of brain structures and functions: language and cognitive function (<http://chancelab.ndcn.ox.ac.uk/Publications.html>).

As far as Russian studies of computer psychology are concerned, it is necessary to mention Lomonosov Moscow State University whose researchers use the virtual reality environment based on CAVE (Cave Automatic Virtual Environment). This activity encompasses the project "The Application of Virtual Reality Technologies in the Development of Innovative Methods for Studying Cognitive Processes of a Person" (2012-2013-<https://istina.msu.ru/projects/8824217/>). This project is focused on the interdisciplinary research, including such areas as computer psychology (imaging and interface research), autism psychology and computer visualization, including graphic and web design tools. This can ensure the study of both psychological problems of autism research with the help of virtual reality environments, as well as the visualization component taken together with the interfaces corresponding to the tasks set.

Nowadays the design of an educational environment for children with autism spectrum disorders, including its content and design, is also under study. There is a body of literature describing the ethical aspects of work with ASDs children (see Bystrova T. Yu., Tokarskaja L.V., 2016; Bystrova T. Yu., Tokarskaja L.V, Grozina V.A., 2016).

In the context of the educational activity with ASDs students, there are publications describing the method of projects (Bystrova T. Yu., Larionova V. A., 2015).

4.4. The features of virtual reality designed for individuals with ASDs

The work on the creation and use of virtual reality environments for the diagnosis and socialization of people with ASDs is interdisciplinary in nature. It emerges at the intersection of psychophysiology, cognitive sciences, mathematical modeling, virtual reality, special pedagogy and psychology.

In this paper, we can use the experience of developing specialized computer visualization systems, for which it is necessary to create new methods of displaying objects and interfaces. In this case, it is important to determine the individual characteristics of specific users who can adequately interpret the results of modeling and visualization. Therefore, the study will use the results of works on studying the features of perception and analysis of virtual reality, i.e., the presence and immersion state, as well as its possible negative consequences (cyber sickness) (Averbukh N. V., 2010), (Averbukh N., 2014), (Riva, G., Mantovani, F. 2012). In addition, it is planned to adapt and further use the software developed for conducting the relevant experiments.

It is planned to offer individuals with ASDs and neurotypical people the same cognitive tasks in the same environment to compare their states when solving the tasks. In the long term it will allow to achieve the results which are as follows: 1) diagnostically create a series of tasks in virtual reality for conducting complex psychological and pedagogical examination of people with suspicion of autism spectrum disorders; 2) during rehabilitation to formulate training assignments in obtaining education, vocational guidance, preparation for further employment.

The conditions for creating a virtual reality with the characteristics that contribute to the solution of cognitive tasks are as follows:

1. The evaluability of methods for

studying the phenomenon of presence. Some of them already exist, the missing part must be found or transformed from existing ones considering the characteristics of people with ASDs.

2. The results of a comparative analysis of the presence status of individuals with ASDs and neurotypical people.

3. The data on the phenomena of presence and immersion in virtual reality environments, related to the state and cognitive abilities of people with ASDs.

4. The data on peculiar features of cognitive tasks' performance by people with ASDs in a virtual environment. These data must be compared with the results of performing similar tasks in a real environment.

5. The analysis of research results in the field of designing techniques aimed at diagnosing ASDs using virtual reality.

6. The psychological and aesthetic parameters of the virtual environment used in the diagnosis and rehabilitation of people with ASDs.

7. The development of visualization techniques and human-computer interaction for virtual reality systems used in working with people with ASDs based on the activity approach to develop interactive visualization systems (Averbukh V. L., et al., 2014), and the requirements for maximum naturalness of interfaces (Starodubtsev I., et al., 2014).

These conditions determine the sequence of work on the project to create a virtual reality for the solution of cognitive tasks. On their basis, we conduct a sketch search, modeling, approbation and adjustment of virtual reality. They, in fact, represent the stages of interdisciplinary design and research activities.

4.5. The risks of work on the use of virtual reality in dealing with persons with ASDs

Starting to work on the design of a virtual environment for people with ASDs, it must be remembered that its influence is still not fully understood even regarding normatively developing individuals. For example, a study conducted by the Center for Children with Autism in Romania showed that 90% of children aged 2-3 years had triggered the development of ASDs by over-viewing (more than 4-5 hours per day) of television programs or interaction with other forms and types of virtual reality ([http://lib.komarovski.net/virtualnyj-autizm-](http://lib.komarovski.net/virtualnyj-autizm-eto-uzhe-realnost.html)

[eto-uzhe-realnost.html](http://lib.komarovski.net/virtualnyj-autizm-eto-uzhe-realnost.html)). Marius Zamfir, a psychologist and coordinator of the Center, introduced the term “virtual autism”, pointing out that “it is practically impossible to distinguish between autism which has developed from the uncontrolled impact of the gadget on the child’s psyche from the classical one”. Among the manifestations of virtual autism there are specific features which are as follows: the lack or difficulty of socialization skills, the lack of persistent eye contact, speech disorders, difficulties with role-playing games, and the presence of stereotypes. M. Zamfir points out that “the difference between classical and virtual autism lies in the fact that in the first case we are talking about biological neurological underdevelopment, and in the second case about the destruction of neurodevelopment caused by the impact of virtual reality”. This study does not consider the impact of virtual reality on children with ASDs, and does not outline other indicators, except for the time spent in a virtual environment. However, it is obvious that the impact of various gadgets and environments on the child may vary significantly. All this should be considered when designing a virtual environment.

5. CONCLUSIONS

During the study, the intellectual activity of adolescents with ASDs will be determined within the framework of virtual reality environments. We will reveal and describe the peculiarities of perception of virtual reality by adolescents with ASDs. We also target the experience of virtual reality phenomena in adolescents with ASDs.

Based on the results of the study, it is planned to develop methods for investigating ASDs using virtual reality media; the methods and software of the ASDs diagnostic process. Accordingly, we plan the implementation of prototypes of software for teaching people with ASDs using visual systems, including the ones based on virtual reality. We will determine necessary and sufficient optimal parameters of the virtual environment, which will facilitate the diagnosis and training of persons with ASDs. In addition, we will develop recommendations on the design of virtual reality environments for individuals with ASDs. Based on the results obtained, it is planned to design and test virtual reality, considering the characteristics of individuals with ASDs. In advance, it is assumed that it should be depleted of sensory stimuli, i.e., it should include a

few colors, a few distractions, and soft colors primarily.

Therefore, from a fundamental point of view, the work will make a contribution to understanding the phenomenon of presence, including related physiological and psychophysiological states of inclusion in activities, and to develop an environment for diagnosis and training of persons with ASDs.

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Conflict of interests

The authors declare no conflict of interest.

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PRESCHOOL EDUCATION STUDENTS' ATTITUDES ABOUT THE POSSIBLE IMPACT OF MUSIC ON CHILDREN'S SPEECH DEVELOPMENT

Dr. Bačlija Sušić Blaženka, University of Zagreb, Faculty of Teacher Education, Croatia

E-mail: blazenka.baclijasusic@ufzg.hr

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ABSTRACT

Music and language are means of human communication, whose common medium is the sound occurring in a unit of time. Numerous relevant studies show that the constant implementation of various forms of musical activities influence the development of a child's speech and motivates the development of pre-reading skills. A survey formed for the purpose of the study explored the positions of the students of the part-time studies of Early and Pre-school Education on the use of musical, creative musical, and multi-modal activities in their immediate methodical practice, as well as their possible impact on children's speech development. The results of the study show that the participants believe that the development of a child's speech is most influenced by musical activities containing multiple verbal elements (children's singing games, songs and counting rhymes) which are more frequently carried out in practice. Although the participants believe that the activities of rhythmical speech and creating a text to an existing melody influence the development of a child's speech the most, it is more common in practice to conduct creative musical activities, such as listening to music while dancing and/or painting, as well as those activities related to sound sensitivity, which may be due to the competences of the participants in the listed areas. The respondents who believe that multi-modal activities contribute to the development of a child's speech, often carry them out more frequently in their methodical practice. The results of the study represent a significant contribution to the further improvement of educational practices.

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1. INTRODUCTION

Based on the point of view that musical potential is universal, as is the linguistic ability (Wallin et al., 2000), there are numerous links between music and language. Their primary means of communication and their common medium is sound organised in time (Shelemay et al., 2001). Kraus and Slater (2015) observe music and language within the context of human communication pointing out that both systems of communication were derived from the basic structure of sound, its inherent har-

monic and temporal properties. Given their common origin, their complementary strength can be expressed and play an important role in the development of human cognition and learning.

The relationship between music and language is further revealed by the similarities in our neural structure during their processing, as well as the cognitive processes specifically linked to certain domains. Dunbar (1996) interprets evolutionary evidence in such a way that speech, as a form of communication, was developed during human development and use of music. Such an interpretation explains the significant overlap of linguistic and musical neural networks contributing to better language learning (grammar, vocabulary, and pronunciation) in children who receive music education. This is further confirmed by recent studies which also point to the common functions of music and speech (Tallal and Gaab, 2006), as well as their mutual influence (Jäncke, 2012). In their study of the influence of

Corresponding Author

Dr. Bačlija Sušić Blaženka, University of Zagreb,

Faculty of Teacher Education, Croatia

E-mail: blazenka.baclijasusic@ufzg.hr



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the tonal function of individual chords on the syntactic and semantic text processing, Hoch et al. (2011) concluded that the neural and the psychological sources of music and language processing overlap to a high extent.

Some authors generally see the similarity between musical and phonological, i.e. prosodic structures of language, which is the result of a common nature of music and language as a sequence of sounds organised in time (Samson, Ehrlé and Baulac, 2001; Ler-dahl, 2001). Considering the similarities and differences in the processing of pitch in speech and music, Friederici (2017) believes that the information about the pitch plays a key role in processing prosody in language, as well as in processing melody in music. In addition, phonological awareness is regarded as a key factor in the development of reading and writing skills (Dege and Schwarzer, 2011; Loui et al., 2011). The same authors also believe that preschoolers can benefit from music classes in order to increase their phonological awareness.

The relationship between musical and linguistic development is particularly reflected in the early stages of child development, as indicated by the phenomenon of communicative musicality. It represents the interaction between mother and child, which is, in the early years of a child's life, a dialogue formed by the elements of rhythm, vocal forms, body movements, and narrative elements (Trevarthen and Malloch, 2002, Trevarthen, 2012). *Communicative musicality* is a key component of a child's early communication which represents fundamental and innate form of child's expression based on his/her appreciation of musical patterns. It is an intrinsic organizing principle, a form of conversation between infant and parents/caregivers in which child may enter minutes after birth. The child is being engaged into the rhythms and melodies of a conversation using form of vocal narratives with body gestures in order to converse emotionally with others.

This communication is based on a dialogical vocalisation which relies on musical elements including pitch, rhythm, dynamics, and timbre. Such a communication forms the foundations of further linguistic and musical development in infants and young children (Trehub, 2003a, 2003b).

There are also other benefits of communicative musicality such as influence to numerous aspects of human development including the development of the child's identity (Trevarthen, 2002), the use of art in the development of human thought and activity

(Dissanayake, 2001, 2002), and the child's early creative expression in music (Barrett, 2006). Barrett (2011) points out that there is still a small number of researches focused on children's early vocalizations and music interactions through which they realize their identity as a musical and social beings

There is increasing evidence indicating that speech functions can benefit from musical functions, and vice versa (Jäncke, 2012). Musical and linguistic activities are, therefore, spontaneously integrated in the child's daily activities from its early age. The Japanese musical pedagogue Shinichi Suzuki based his musical-pedagogical concept on the relationship between speech and music, noting that the child's ability to learn their mother tongue is an indicator of its hearing development. Therefore, he believed that children should use such a natural method, used in language learning, in their musical education as well. The specificity of the Suzuki method is the learning of playing a musical instrument on the model of speech learning (through listening, observation, and imitating), and the author stresses the period between the child's third and fifth year of age as the most suitable for such a method of musical education (Bačlija Sušić, 2016).

In music, the word also represents a means of its expression, along with sound or tone. Numerous musical activities, based on performance and reproduction of learned songs, counting rhymes, singing games, etc. as well as creative musical activities focused on process of music production include verbal elements. Creative musical activities include activities such as: sung speech, rhythmic speech, creating lyrics to accompany existing melodies and vice versa, creating melodies to accompany existing lyrics (setting verses to music), etc.

Denac and Škorjanec (2017) emphasize the role of language in musical activities such as singing songs, listening to music, and playing music. The author points out the balanced relationship of text and melody in musical designing of a text, in such a way that at one time, the text is in the foreground (speech parts are inserted into melody), and at another, melody illustrates events through sounds (onomatopoeic expressions). The authors also point out that in selecting songs, the preschool or schoolteacher's role is to select a song with a clear and simple text that a child can understand, which will also contribute to the child's linguistic, musical, or singing ability. When listening to music, a child creates his/her own representation of the musical work based on

his/her impression and perceptual abilities and expresses it in a syncretic way (through movement, drawing, speech, etc.). This syncretic expression also contributes to the development of his/her creative, i.e. productive potential.

Jewit and Kress (2003) call this organised collection of various means of creating meaning, which can include images, looks, gestures, movement, music, speech, and sound effects, a multi-modal expression, i.e. a multi-modal way of communication. It is, thus, created by a combination of different modes (image, text, appearance, music, movement, speech, moving images) which contribute to the richness of creative expression. Van Leeuwen (2005) defines the multi-modal concept as a combination of different semiotic ways, such as language and music, in a communicative creation or occurrence.

Although Vygotsky (1978) emphasizes language as the most important "instrument of communication", Mercer and Littleton (2007) believe that language is not a single, but a broad set of instruments. We, therefore, use a variety of semiotic means in communication, including different movements, sounds, music, drawings, images, etc., along with speech, gestures, etc. This is also confirmed by Pramling and Wallerstedt (2009), who believe that different ways/modes of communication are transmitted and combined. Thus, for example, we tend to use various non-verbal forms of communication, such as making certain gestures when speaking (Iverson and Goldin-Meadow, 1998; Kendon, 1997), which represent semantic means of the non-verbal type (Vygotsky, 1978; Säljö, 2005). With the help of various forms of communication, we are capable to better express our impression of the world around us, as well as to affect other people's impressions.

1.1. Relevant research on the connection between music and language

Numerous studies point to the connection of music and language in children's early age. Starting with the common nature of music and language, based on the natural patterns of sounds and silence, Chen-Hafteck and Mang (2012) consider music as a means of language learning. They claim that this is also indicated by brain studies which confirm the similarities in the processing of musical and linguistic information. Furthermore, numerous studies cite

practice examples in working with young children where songs and other musical activities are used to improve children's linguistic skills (Dahlbäck, 2011; Still, 2011). The potential link between musical and linguistic skills is also confirmed by a significant positive correlation between different competencies observed in various studies: pitch and phonemic discrimination (Lamb and Gregory, 1993; Anvari et al., 2002); rhythm and prosody (Patel, 2006); rhythmic ability and reading (Douglas and Willats, 1994) and recalling certain melodies and connecting them with texts (Harms et al., 2014). Along with these correlation studies, there are also experimental studies exploring the influence of music learning on linguistic skills, such as the study conducted by Strait and Kraus (2011) which concluded that musical abilities were a significant predictor accounting for over 40% of variance in reading skills among children aged 8-13 with little or no musical education. The same authors concluded that the connection between language and music processing is particularly expressed in rhythmic skills.

On the other hand, there are studies focused on how exposure to a certain language influences musical ability, showing that language, among other things, has a significant impact on a child's singing ability (Chen-Hafteck and Mang, 2012). These authors studied how the use of different languages (Cantonese and English) and their tonal height influences tonal precision in children's singing, depending on the language they speak.

Moyeda, Gómez, and Flores (2006) studied the connection between musical and linguistic skills through a specially designed program of musical activities aimed at creating differences between the elements of melody and rhythm, and the connection of auditory stimuli to visual and motor activities. The effects of this program and the program called *Rhythms, songs and games* were evaluated and compared to the vocabulary of preschool children and the vocabulary of those children who were not exposed to any of the above two programs. The results of the study showed a significant increase in the receptive vocabulary in the group of children exposed to the program which included musical activities.

Wallerstedt (2013) believes that there is a symbiotic relationship between music and language in children's development and that in very young children, the two are so close that they are the same. The environment in which the child is brought up also represents a significant factor.

Jeremic (2018) describes the connection between language and music as a dynamic relationship in which work in one area also contributes to the development of the other.

It is important that during their growing up, children still experience the close connection between music and language, since, because of environmental influence, they can acquire and experience them differently (Chen-Hafteck and Mang, 2012).

In addition to these studies, the concept of multi-modality has, in recent years, been the subject of numerous studies related to upbringing and education, especially regarding the new literacy perspective (Bourne and Jewitt, 2003; Kress, 1997), natural sciences (Jewitt et al., 2001), as well as the artistic field, visual arts (Wright, 2007) and music (Finney, 2003; Vandivere (2008); Walker, 2004; Pramling and Wallerstedt, 2009).

Vandivere (2008) believes that communication in music education which includes different facial expressions, gestures, and body movements, is a crucial teaching strategy and the indicator of the students' comprehension, as well as the satisfaction of their needs. Based on the view that different communicative ways/modes are transmitted and combined, Pramling and Wallerstedt (2009) studied the connection between sound (non-verbal) and verbal aspect within the framework of music education of children aged 4-8. They investigated the way in which children react/respond to tasks in which they face a challenge of talking about the music they experience/learn about. They analysed the semi-otic means that the children and their educators/teachers used, as well as the way of their transformation from one modality to the next (verbal, sound, colours, and gestures).

2. METHODOLOGY

2.1. The respondents

A total of 125 respondents participated in the study, of which 123 were female (98.4%) and 2 were male (1.6%). The largest number of respondents was aged 22-32 (N=79; 63.2%), and there were 36 respondents aged 33-43, that is, 28.8%. The smallest number of respondents was aged 44-54 (N=6; 4.8%), and 4 respondents (3.2%) did not indicate their gender.

Of the total number of respondents, 95.2% (N=119) were employed in a preschool at the time of the research, while only

4.8% (N=6) were not employed. Approximately half of the respondents, 51.2% (N=64) said that they could play a musical instrument, 46.4% (N=58) that they did not, and 2.4% (N=3) did not state whether they could play an instrument. Most respondents, 85.6% of them (N=107), said that they did not undergo additional music education, and 14.4% (N=18) stated that in addition to school and/or university, they had attended additional forms of music education.

2.2. Measuring device and procedures

Questionnaire was constructed for the purposes of this study. Alongside the initial respondent data it included the following subscales: respondents' opinions on the possible effects of musical, creative musical activities, and multi-modal activities on children's speech development, the frequency of conducting these activities, the views and opinions on the competencies they would like to additionally improve during their graduate studies, and the conditions for conducting these activities in educational practice.

Descriptive and inferential statistics were used in the study, and the SPSS statistics program was used to calculate the data.

2.3. Purpose and objective of the study

The problem of the study was to examine how the part-time students of the graduate Early and Preschool Education studies Faculty of Teacher Education in Zagreb, Croatia, assessed the possible influence of musical activities, creative musical activities, and multi-modal activities on speech development. The aim of the research was to examine their opinions and attitudes on the potential impact of individual musical activities, creative musical activities, and multi-modal activities on speech development, the frequency of conducting these activities in educational practice, and their mutual relationship.

2.4. Hypotheses of the study

In accordance with the above problem and the purpose of the study, the following hypotheses were established:

H1 Respondents believe that musical

activities that have more verbal elements contribute to children's speech development

H2 Respondents believe that creative musical activities which include more verbal elements and multi-modal activities contribute to the children's speech development

H3 Respondents frequently conduct musical and creative musical activities which include more verbal elements in their educational practice

H4 Respondents frequently conduct multi-modal activities in their educational practice

H5 There is a significant correlation between the respondents' opinions on the impact of individual musical and creative musical activities on children's speech development and the frequency of their implementation in educational practice

H6 There is a significant correlation between the respondents' opinions on the impact of multi-modal activities on children's speech development and the frequency of their implementation in educational practice.

3. RESULTS

The average values indicating which of the mentioned musical activities respondents believe most influence children's speech development are shown in Table 1.

Table 1. Respondents' opinion on the possible impact of a musical activity on children's speech development

	The arithmetic mean	Std. deviation
Song acquisition and repetition	4.36	0.70
Counting rhyme acquisition and repetition	4.43	0.63
Children's singing games	4.58	0.58
Playing hand-crafted rattles or instruments from a children's instrumentarium	3.84	0.95
Active listening to music	3.98	0.86
Music creation	4.28	0.73

According to the results presented in Table 1, the three musical activities which most contribute to children's speech development are *children's singing games* ($X=4.58$;

$sd=0.58$), *counting rhyme acquisition and repetition* ($X=4.43$; $sd=0.63$), and *song acquisition and repetition* ($X=4.36$, $sd=0.70$). The two musical activities that the respondents believe least contribute to children's speech development are *playing hand-crafted rattles or instruments from a children's instrumentarium* ($X=3.84$; $sd=0.95$) and *active listening to music* ($X=3.98$; $sd=0.86$). These results show that the respondents believe that the activities containing more verbal elements contribute more to children's speech development as opposed to the activities with less verbal elements, which was expected. Moreover, given that the arithmetic mean scores of all fields are higher than 3, the results also show that most of the respondents believe that all listed activities contribute to children's speech development, rather than not. Therefore, the obtained results, displayed in Table 1, confirm the set hypothesis (H1).

Table 2. Respondents' opinions on the possible impact of creative musical and multi-modal activities on children's speech development.

	The arithmetic mean	Std. deviation
Activities related to sound sensitivity	4.12	0.82
Body percussion	3.93	0.97
Sung speech, asking musical questions and completing musical phrases	4.36	0.76
Varying the melody, rhythm, tempo, dynamics, character in a familiar song and counting rhyme	4.01	0.83
"The Little Orchestra"	3.86	0.90
Activities related to making sounds which fit a story or a poem	4.13	0.81
Creating lyrics for an existing melody	4.42	0.76
Setting a text to music	3.95	0.92
Listening to music while dancing/drawing/painting	4.02	1.00
Multi-modal activities	4.23	0.73

As shown in Table 2, the respondents believe that out of all creative musical activities, speech development is mostly helped by the activities containing more verbal elements, such as *rhythmic speech* ($X=4.46$; $sd=0.71$) and *creating lyrics for an existing melody*

($X=4.42$; $sd=0.76$), as well as *sung speech, asking musical questions, and completing unfinished musical phrases* ($X=4.36$; $sd=0.76$), and in the least by activities such as *playing hand-crafted rattles or instruments from the children's instrumentarium – so-called The Little Orchestra* ($X=3.86$; $sd=0.90$), or *body-percussion* ($X=3.93$; $sd=0.97$). Given that all the arithmetic mean scores are above the central value on the scale, that is, three, we can conclude that the general respondents' opinion is that all creative musical activities contribute to speech development to some extent. Respondents also believe that multi-modal activities significantly contribute to speech development ($X=4.23$; $sd=0.73$). The results displayed in Table 2 confirm the second hypothesis (H2).

Table 3. Frequency of implementing musical activities in educational practice

	The arithmetic mean	Std. deviation
Counting rhyme acquisition and repetition	4.14	0.82
Song acquisition and repetition	4.31	0.76
Children's singing games	4.36	0.83
Playing hand-crafted rattles or instruments from a children's instrumentarium	3.62	0.98
Active listening to music	3.99	1.04
Music creation	3.61	0.96

Respondents stated (as shown in Table 3) that the activities they most frequently conducted in practice were *children's singing games* ($X=4.36$; $sd=0.83$) and *song acquisition and repetition* ($X=4.31$; $sd=0.76$), as well as *counting rhyme acquisition and repetition* ($X=4.14$; $sd=0.82$). Relatively least frequently, but still moderately often conducted, were the activities of *playing hand-crafted rattles or instruments from the children's instrumentarium* ($X=3.62$; $sd=0.98$) and *music creation* ($X=3.61$; $sd=0.96$).

The obtained results show that in practice, respondents more frequently conduct activities which contain more verbal elements, and for which they believe contribute to children's speech development.

Table 4. Frequency of conducting creative musical activities in educational practice

	The arithmetic mean	Std. deviation
Activities related to sound sensitivity	3.51	0.95
Body percussion	3.01	1.08
Sung speech, asking musical questions and completing musical phrases	2.94	0.99
Varying the melody, rhythm, tempo, dynamics, character in a familiar song and counting rhyme	3.30	1.07
"The Little Orchestra"	3.40	1.14
Activities related to making sounds which fit a story or a poem	3.12	1.06
Setting verses to music	2.52	1.14
Creating lyrics for an existing melody	2.74	1.20
Listening to music while dancing /drawing painting	3.97	0.93

As shown in Table 4, respondents stated that they most frequently conducted the following creative musical activities: activities related to listening, mimicking, and identifying sounds (3.51 ; $sd=0.95$), "The Little Orchestra" ($x=3.40$; $sd=1.14$), listening to music while dancing and/or drawing or painting ($X=3.97$; $sd=0.93$), and, whereas the least conducted activities were setting verses to music ($X=2.52$; $sd=1.14$) and creating texts for an existing melody.

Given that, within the framework of creative musical activities, respondents conducted activities related to sound exploration and listening to music more frequently, and activities containing more verbal elements less frequently, the third hypothesis (H3) was only partially confirmed.

Table 5. Frequency of conducting multi-modal activities in educational practice

	The arithmetic mean	Std. deviation
Frequency of integrating musical activities and linguistic games	3.90	0.80
Frequency of implementing multi-modal ways of children's acquisition of various types of content	3.53	0.82

Regarding the implementation of multi-modal activities in educational practice (Table 5), the respondents stated that they conducted musical activities and linguistic games very frequently ($X=3.90$; $sd=0.80$), whereas they only sometimes conducted multi-modal adoption of various types of content ($X=3.53$; $sd=0.82$).

Given that the combination of musical activities and linguistic games at the same time represents a form of multi-modal activity, the obtained result shows that the respondents understood the concept of multi-modal activities as one containing certain other activities which they did not conduct very frequently in their educational practice, and therefore, the fourth hypothesis (H4) is also only partially confirmed.

Table 6. Correlation of the respondents' opinions on the possible impact of musical activities on children's speech development with the frequency of their implementation in practice

	Pearson's correlation coefficient	Significance
Song acquisition and repetition	.35**	.00
Counting rhyme acquisition and repetition	.19*	.03
Children's singing games	.21*	.02
Playing hand-crafted rattles or instruments from a children's instrumentarium	.18	.05
Active listening to music	.10	.27
Music creation	.19*	.04

* Correlation is significant at the value of 0.05 (bidi-rectional).

**Correlation is significant at the value of 0.01 (bi-directional).

Table 6 shows a significant correlation between the opinions that a certain musical activity contributes to speech development and its more frequent implementation in practice. The correlation did not appear significant at the activities of playing hand-crafted rattles or instruments from the children's instrumentarium, and active listening to music.

Table 7. Correlation of the respondents' opinions on the possible impact of creative musical activities on children's speech development with the frequency of their implementation in practice

	Pearson's Correlation coefficient	Significance
Activities related to listening, mimicking, and identifying sounds	0.17	0.06
Body percussion	.23**	0.01
Sung speech, asking musical questions and completing unfinished musical phrases	0.13	0.16
Varying the melody, rhythm, tempo, dynamics, and/or character in a familiar song and counting rhyme	.26**	0.00
Playing hand-crafted rattles or instruments from the children's instrumentarium – so-called "The Little Orchestra"	.22*	0.02
Activities related to encouraging children to make sounds which fit a story or a poem during their performance	.19*	0.03
Setting verses to music	0.04	0.66
Creating lyrics for an existing melody	0.06	0.53
Listening to music while dancing and/or drawing or painting	.20*	0.03

Table 7 shows the results of the study which examined whether the respondents who believed that creative musical activities contributed to children's speech development would be prepared to conduct those activities in practice more frequently. Out of nine examined creative musical activities, for five of them there was a statistically significant link between the preschool teacher's positive opinion that a certain activity contributed to children's speech development and its more frequent implementation in practice, whereas there was not any for four of the activities. As a rule, this means that if the respondents believe a certain activity contributes to speech development, they will be ready to conduct it with children in their educational practice more frequently. The activities for which there was a significant connection are *body*

percussion ($r=0.23$; $p=0.01$), *varying melody, rhythm, tempo, dynamics, and/or character in a familiar song and counting rhyme*, ($r=0.26$; $p<0.00$), *playing hand-crafted rattles or instruments from the children's instrumentarium – so-called "Little Orchestra"* ($r=0.22$; $p=0.02$), *activities related to encourage children to make sounds that fit a story or song during their performance* ($r=0.19$; $p=0.03$), and *listening to music while dancing and/or drawing and painting* ($r=0.20$; $p=0.03$). Given that for most of the activities there is a significant correlation between the positive opinion of the respondents on the impact of creative musical activities on children's speech development and more frequent implementation of said activity in practice, the fifth hypothesis (H5) was partially confirmed.

One of the possible reasons for a positive connection in some activities and the lack thereof in others might be because certain activities are conducted more frequently, and are conducted for other reasons, and not only because the respondents believed they contributed to speech development. In addition, as noted above, the obtained results might also be attributed to the pre-school teachers' competencies for individual creative musical activities (Bačlija Sušić, 2018), as well as their belief in their own self-efficiency in conducting musical activities, which also affect the formation of their competencies in educational practice (Vannata-Hall, 2010; Garvis and Pendergast, 2011).

Table 8. The correlation between the opinion that multi-modal activities contribute to speech development with their frequency of implementation in practice

		Implemen- tation of musical activities and linguis- tic games in praxis	Implemen- tation of multimodal activities
Multi- modal activities contribute to speech develop- ment	Pearson's correla- tion co- efficient	.24**	.30**
	Signifi- cance	.01	.001

**Correlation is significant at the value of 0.01 (bi-directional).

When considering the correlation between the respondents' opinions on the contribution of multi-modal activities to speech development and the frequency of implementing such activities, the study showed that there was a positive correlation between these variables (Table 8). Teachers who believed that multi-modal activities contribute to speech development integrated musical activities and linguistic games more frequently in their immediate methodical practice ($r=0.244$; $p=0.01$) and used a multi-modal way of children's acquisition of various types of content more frequently ($r=0.30$; $p=0.0001$). These results confirm the sixth hypothesis (H6).

4. DISCUSSIONS

The results obtained show that the participating graduate students of Early and Pre-school Education, out of which the majority were, at the same time, preschool teachers, working in educational practice, believed that children's speech development was most strongly influenced by precisely those musical activities which contain more verbal elements, such as children's singing games and counting rhyme acquisition and repetition, which are, along with the activity of song acquisition and repetition, more frequently conducted in educational practice.

Although the participants believed that out of all creative musical activities, the activities of rhythmic speech and creating a text to accompany an existing melody influence the development of a child's speech the most, it is more common in practice to conduct creative musical activities, such as listening to music while dancing and/or drawing and painting, as well as the activities related to sound sensitivity, which may be due to the better competencies of the participants in the listed areas. Frequency of implementing musical activities and creative musical activities in educational practice can be linked to the respondents' positive opinions about the impact of musical activities and creative musical activities on children's speech development and their competencies for conducting these activities as well. Respondents more frequently conducted the musical activities and creative musical activities they felt more competent for.

According to the results of the study related to self-assessment of competencies

of preschool teachers for musical activities and creative musical activities (Bačlija Sušić, 2018), the respondents assessed their competencies for activities such as *counting rhyme acquisition and repetition* (55.4%), *conducting children's singing games* (54.1%), and *music listening activities* (54.1%) with the highest marks, while the activity of *song acquisition and repetition* (46.3%) was assessed with somewhat lesser marks. Regarding the self-assessment of competencies for creative musical activities, the respondents felt the most competent in *activities related to listening, sound sensitivity and activities of listening to music while dancing and/or drawing and painting* (Bačlija Sušić, 2018).

Additionally, the frequency of the implementation of music and creative musical activities in educational practice can be attributed to other reasons, not just to the respondents' belief that these activities contribute to the development of the child's speech. It can also be attributed to respondents' belief in their own self-efficiency in conducting musical activities, which furthermore affect the formation of their competencies in educational practice (Vannata-Hall, 2010; Garvis and Pendergast, 2011).

Smit (2001) states that singing, and listening to singing, relieves the child's mental tension which often causes stuttering in preschool children. In addition, the same author believes that with the development of melody awareness, speech intonation is also improved, contributing to the harmony between rhythm and intonation, which further leads to a better clarity of the message. Harmonisation of linguistic stress and the musical metre in a song improves the course of the musical meter and the understanding of verses (Gordon et al., 2011).

Child has the innate need for syncretic i.e. multimodal expression. Given the connection between speech, rhythm, movement, and music, which constitute a unique whole in language acquisition and musical activities, children's singing songs, singing games, counting rhymes, finger games, tapping rhymes, clapping games, and similar activities have a significant impact on children's speech development. Although the activities related to sound sensitivity as well as creating sound images through active listening to music do not contain any verbal elements at first glance, they are also significant in children's speech development, since through these activities, the child is encouraged to express him/herself verbally while describing his/her sonic and

musical perceptions and impressions, which contributes to the acquisition of professional language, as well as the experience of literary content (Denac and Škorjanec, 2017).

These activities also stimulate the child to express his/her impression syncretically and multimodally (through speech, movement, image, etc.). Teachers who believed that multimodal activities contribute to speech development integrated musical activities and linguistic games more frequently in their immediate methodical practice and used a multimodal way of children's acquisition of various types of content more frequently.

Multimodal activities as a combination of different semiotic ways, such as language and music in a communicative formation or occurrence (Van Leeuwen, 2005) at the same time represent the integration of various ways and possibilities of the child's expression, which are particularly used in education. Considering that today musical experience is often multimodal, the power of music is precisely in its use as a multimodal form of communication (Way and McKerrel, 2017).

5. CONCLUSIONS

Based on the results of the study, we can conclude that the participating preschool teachers, the graduate students of Early and Preschool Education studies, believe that most musical and multimodal activities affect the development of children's speech.

All musical activities and creative musical activities in educational practice indirectly or directly influence children's speech development. By implementing musical activities containing more verbal elements, the child's inherent linguistic potential is developed and stimulated, along with the development of the child's musical abilities (Jäncke, 2012).

Singing of songs stimulates the formation of sounds/voice (Denac and Škorjanec, 2017) while recited (chanting) counting rhyme radiates a rhythmic freshness and richness of words which simultaneously represent a strong intellectual and musical stimulus (Jurišić and Sam Palmić, 2002). Although activities related to sound sensitivity and the activity of listening to music do not contain any verbal elements in the first place, they also contribute to the child's speech development through verbal description of musical experience. Apart from that, during musical and speech functions, several neural modules

are activated in very similar ways (Tallal and Gaab, 2006).

Both media, language and music, offer the possibility of a child's creative expression as well. Creative musical activities, especially the ones containing more verbal elements, such as the activities of sung speech, asking musical questions and completing unfinished musical phrases, creating lyrics to an existing melody, and setting a text to music, greatly contribute to children's speech development. Creating original lyrics and songs with rhythmic movement is a child's natural activity and a natural way of his/her creative expression. Through the adoption of various songs, counting rhymes, and singing games, the child also enriches his/her vocabulary.

The development of musical and linguistic activities in a child is particularly stimulated by multimodal activities which integrate different forms of expression such as image, text, music, movement, speech, moving pictures, etc., which provide the child with the possibility of complete and spontaneous expression of musical experience. Such a rich integrated form of a child's expression at the same time represents a rich syncretic expression in various fields of art, which Vygotsky (2004) attributes to the primal form of creativity in which individual types of art were not separated or specialised but represented an indivisible whole.

The teacher's developed awareness of the significance and importance of stimulating musical and creative musical activities in children's development plays a crucial role. This awareness is also the fundamental factor influencing their frequency of use in educational practice. In addition, the teacher's developed awareness further stimulates his/her interest and motivation for further development of musical competencies (Bačlija Sušić, 2018).

The thoughts of the Japanese musical pedagogue Shinichi Suzuki best illustrate the connection of music and language, as well as their mutual influence: "When the human race created the culture of speech and writing, it also created the high culture called music. Music is a language that goes beyond speech and letters - a living art that is almost mystical. This is where its emotional impact comes in. Bach, Mozart, Beethoven - without exception they live clearly and palpably in their music, and speak forcefully to us, purifying us, refining us, and awakening in us the highest joy and emotion" (Suzuki, 2002, p.83).

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Conflict of interests

The author declares no conflict of interest.

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ACTIVE LEARNING TECHNOLOGIES IN DISTANCE EDUCATION OF GIFTED STUDENTS

Dr. Abakumova Irina, Corresponding Member of Russian academy of education, Don State Technical University, Rostov-on-Don, Russian Federation

E-mail: abakira@mail.ru

Dr. Bakaeva Irina, Southern Federal University, Rostov-on-Don, Russian Federation

E-mail: iabakaeva@sfedu.ru

Dr. Grishina Anastasia, Don State Technical University, Rostov-on-Don, Russian Federation.

E-mail: avgrishina.sfedu@gmail.com

Dr. Dyakova Elena, Rostov State Transport University, Rostov-on-Don, Russian Federation

E-mail: evdyakova.rgups@gmail.com

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ABSTRACT

The article reveals the notion of distance education, meaning formation, meaningful technologies. The modern concept of psychological and pedagogical support of talent is associated with the concept of the child's abilities disclosure in education. Discussion about the developing potential of distance education, where, on the one hand, the student's development potential is flattened, compressed and translated into "one-dimensional space" in the process of education; on the other hand, there is a whole range of opportunities to initiate independent activity of students, to include mechanisms of cognitive and personal development of a modern student. The psychological bases of active learning technologies in distance education of gifted students are described. The author's classification of interactive learning technologies using remote technologies is considered, where each technology finds several concrete embodiments. The results of an experimental study of gifted students' independent activity initiation in distance education are presented.

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1. INTRODUCTION

In modern psychological and pedagogical studies, the topic of informatization, high technologies, computers, Internet in the life of society is actively discussed. Various interactive resources, media, distance and mass online courses, which are used to organize the training, are widely distributed in the educational system. Online resources are introduced into the traditional educational process as tools for organizing independent activities of students, filling the academic discipline with new and up-to-date information, implement-

ing automated or centralized control. In other systems, distance education (DE) completely replaces the traditional one.

ICDE studies show that the current trend is the expansion and deepening of the open and distance education quality throughout the world. Priority tasks are:

- creation of favorable structures for open education (OE) at all levels;
- stimulating the use of Open Educational Resources (OER) - Open educational resources - publicly funded educational resources;
- development of international structures for the qualifications confirmation;
- adoption of the quality standards, recommendations and assessments for open, online and distance learning, to improve the quality of distance education, and to develop innovative approaches to the learning outcomes evaluation (Ozhgibesova N. and Chelyadinova O., 2014).

Accordingly, the psychological and methodological foundations of interactive

Corresponding Author

Dr. Grishina A., Don State Technical University, Rostov-on-Don, Russian Federation.

E-mail: avgrishina.sfedu@gmail.com



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education with the use of technical means or by means of only electronic technologies are at the level of scientific discussion. They meet with heated discussion both in scientific circles and in the practice of the teacher's activity. The methodology lags behind the implementation practices.

The analysis of Russian and foreign research allows us to identify the main problem points in the application of distance technologies.

In the works of A. A. Andreev and the Concept of the creation and development of distance education unified system in the Russian Federation distance education is understood as "a set of educational services provided to wide sections of the population in the country and abroad with the help of a specialized information and educational environment based on the means for the exchange of educational information at a distance (satellite television, radio, computer communications, etc.)" (Bakaeva I., 2016). Distance education involves interactive interaction between the learner and the cumulative subject (teachers plus other students) of the information environment, in which the environment becomes both an object of intellectual activity and its (the environment plus the learner) subject.

Distance learning is understood as learning "provided by the use of educational technologies set, in which the purposeful indirect or not completely mediated interaction between the learner and the teacher is carried out irrespective of their location and distribution in time on the basis of pedagogically organized information technologies, primarily with the use of telecommunications means" (Decree of the Russian Federation State Committee of Higher Education, 1995).

Russian researchers, L. Alkova, O. Babanskaya, I. L. Vasilyeva, M. B. Lebedeva is considering distance interactive learning technologies as effective methods for developing students' independent activities with the goal of forming various educational and professional competences (Lebedeva M. B., 2010). At the same time V. V. Davydov, N. B. Kocharyan differentiate the various problems and difficulties in introducing distance learning into mass practice, which is associated with economic difficulties, the unavailability of teachers, low student motivation, and psychological factors, like the shortcomings in the development of modern students' speech, "flattened" perception, and as a result narrow thinking, not generates broad alternatives, which contradicts the developmental nature

of education. Some adherents of traditional learning in face-to-face discussions often argue that distance education further exacerbates the immersion of modern students in the virtual world, adversely affects their cognitive resources development, makes them "slaves" of technology.

G. A. Reznik, Y. S. Ponomarenko, O. V. Lyshchik in their studies emphasize that the introduction of distance and mass electronic technologies in the Russian education is hampered by the inadequate elaboration of the scientific-methodological and normative bases of distance education in educational institutions, the lack of psychological and technological readiness of specialists, the development and implementation of these technologies, the insufficient technical equipment of the educational process (Reznik G. A., Ponomarenko Yu. S. and Lyshchik O. V., 2016).

T. V. Gromova, Y. V. Semochkina also highlight the importance of methodological and methodological study of on-line and distance education in modern systems. They study the features of active methods of training in DE: case-method, brainstorming, business games (Gromova T. V. and Semochkina Yu. V., 2016).

The possibilities and reserves of using massive open online courses as a new, even more recent model of distance education in the educational space of higher education are being studied in the works of E. A. Shuklina (Shuklina E. A., 2016). The author emphasizes the pent-up demand for young people on-line education.

Author's positions allow us to conclude that distance and other electronic technologies are the vital result of the society informatization development. At the same time, e-learning opens up new horizons for pedagogical practice, allows expanding the resources, technologies and methods of teaching. New technologies put education itself to a new level, providing continuous education throughout life, and educational organizations in the role of innovation centers. Distance technologies change both the philosophy and the methodology of education, when education acquires a nonlinear model, where the subject-subject relationship of the teacher and student comes to the fore in the process organization, and organizational structures become auxiliary tools. The training process itself changes from strictly regulated to flexible, the speed of training depends only on its subjects. The program and content of training can be multiplied a hundred times in geometric progression by

attracting all the new resources and wiki technologies in accordance with the student's requests and opportunities.

In the modern practice of identifying and developing children's talent, the most important question is the pedagogical and psychological support of the child's development individual trajectory. It is not always possible to implement by means of education institutions or even the city. Often we can use the educational resources necessary for the promotion and development of the child from the Internet. Mass open online courses, online competitions, contests, online communities contribute to the development of various competencies and self-development of a gifted student.

Euna Park, Hae-Deok Song, Ah Jeong Hong explore the impact of new trends in education and technology, in particular the use of social networks in the process of motivating students to learn (Park E., Song H. D., Hong A. J., 2018).

The question of the distance technologies developing potential, their application with the goal of transforming the student's mental cognitive processes arises in psychological science.

Thus, the development of the psychological foundations and methods of DE are reflected in modern studies. There is a search for effective technologies of implementing distance education for students and youth; development of self-educational competences of students; the use of information and communication technologies to implement various control options, such as the rating system, evaluation systems. Practitioners describe the use of various educational resources, such as a wiki portal, electronic simulators; issues of networking in the educational environment. Concerning distance education of schoolchildren, most of the works cover the distance education of persons with disabilities, the disclosure of various electronic tools functionality.

Pedagogical psychology is in difficulty with the task of developing the learning motivation, developing skills and motivations for independent learning activities. Modern research, revealing the new didactic, psychological and pedagogical foundations of modern education, are reflected in the works of I. A. Abakumova, D. A. Leontiev, I. A. Rudakova, M.A. Friesen, who describe the technological components of learning activity organization in general and independent cognitive activity in particular through a deep psychological analysis of the students meaning (Abakumova I. V. et al, 2014).

In Russian psychology, the development of the meanings theory, which is currently studying the technology of students sense-formation processes initiation, triggering other mechanisms for motivating self-educational activity: the initiation of reflexive abilities is described by E. V. Belova, studying the technology of directed meanings in learning, studies L. Ts. Kagermazova, the influence of students' meanings is described by I. A. Nesterenko.

Ideas of personalized, semantic learning are an important milestone of modern psychological and pedagogical thought. This approach, built on the theory of meaning relative to learning activity, develops in the integrative model of sense formation in the educational process developed by I. V. Abakumova (Abakumova I. V. et al, 2014). In this theory, the prerequisites for the personal development of students, which create conditions for more complete self-regulation, are considered as fundamental. Namely, the personal component is indispensable in independent activity. Sense formation is understood by I. V. Abakumova as "the development of individual meanings of the participants in pedagogical interaction: their enrichment and their multidimensionality acquisition through interaction with the personal senses of other subjects of pedagogical interaction, with pedagogical meanings and culture texts" (Abakumova I. V. et al, 2014).

In the concept of guided independent learning, which is based on the reorientation of the current learning process from an extensive to an intensive basis (I. V. Abakumova, V. T. Fomenko) (Abakumova I. V. et al, 2014, p. 37). Independent activity of students in it is an important psychological link of self-development, at each stage of which we observe the formation of knowledge volume and skills for solving cognitive tasks and progressing through the levels of intellectual activity. Determining importance in the independent work effectiveness has a motivation - external, internal and procedural or educational (Abakumova I. V. et al, 2014, p.17). Accordingly, when organizing the independent activity of students, the main goal is personal development, self-realization, creative development, and the application of self-managed learning technologies contributes to this in full.

The majority of foreign researchers of the beginning of the XXI century connect the problem of students' independent activity with the technologies development. They are called in different ways: distance learning, e-learning, flexible training, etc. In the English

psychological and pedagogical literature, the questions of organizing independent activity are studied in Oxford, the founder of distance university education, where, as described by Ashwin P., Archer I. W., Beck R. J., independent work is built on the basis of methodological materials with the participation of tutors. The University's Education Committee determines the aim of the tutor to develop the individual abilities of the student to master the depth of the subject area, and to work with growing confidence in their abilities.

Distance learning is recognized as an evolving element of education throughout the world. M. A. Uddin in his works cites facts that only in the US 6.7 million students were trained online in 2011, which amounted to 32% of the total set in higher education (Uddin M. A., 2013).

The most discussed issue is selecting the content of independent learning. M. Ally emphasizes the importance of using a multi-approach in the design of distance learning materials. He believes that it is necessary to use a combination of theories, thereby developing distance learning materials. In addition, the author points to the continuity of the science development, new materials of which must be used in the online materials development.

In modern foreign studies, issues of the effectiveness of independent activity are being actively considered. J. L. Moore studies the student's self-regulation characteristics from the social cognitive point of view. The author defines the student's autonomy as the degree to which the student determines the goals, the learning process and evaluates the decisions. He believes that the greatest success in the distance learning courses will be the most self-organized and independent students. J. L. Howland, J. L. Moore note the importance of the issues of independent learning activities research in the context of online learning; lead positive correlations of self-organization with positive academic results and the safety of the contingent of students, as well as their satisfaction with the program. Kelsey Hood Cattaneo points out that there are difficulties in identifying certain didactic categories of active learning pedagogy, which are based on insufficient knowledge of teaching methods (Hood Cattaneo, K., 2017).

Y. Vovides, S. Sanchez-Alonso, V. Mitropoulou, G. Nickmans point to the active interaction between the teacher and pupils in distance education, which increases the emotional participation of pupils in learning and increases students' self-motivation, self-

regulation and self-management. The authors insist on creating an emotionally supportive learning environment that promotes cognitive development of students and develops critical thinking (Silchenko L. and Zubova T., 2017). J. Oomen-Early, L. Murphy consider that distance learning technology promotes self-actualization of both students and teachers, arguing that distance learning simultaneously facilitates student independence and control, while contributing to the satisfaction of adults self-actualization needs.

Thus, the search for ways and methods of development and initiation of independent cognitive activity is key in the current educational situation in the light of the federal state educational standards introduction and education modernization in Russia.

In distance education as one of the technologies for initiating independent activity, researchers find distinctive developmental markers, which are fixed in this form. Distance education assumes an interaction between the learner and the cumulative (teachers plus other students) the subject of the information environment, in which the environment becomes simultaneously the subject of intellectual activity and its (the environment plus the learner) subject. The psychological grounds for the development of independent students activity in the distance education system are revealed: first, in distance education, the environment acts as a means of expanding the consciousness and memory of a person and becomes a form of individual consciousness being and memory; secondly, the processes occurring within the learning system are represented in the outside and vice versa; thirdly, the very process of education is a model of intellectual activity in general, it can be easily seen that it is structured and allows you to isolate, objectify and study its various functions; fourth, the "impersonal" and "formalized" process of distance learning, in deep structure carries the developing potential of a very wide spectrum of action: the formation of productive, creative functions of thinking, the growth of intellectual abilities, the formation of the operational style of thinking, formed the motivational structure of the personality, the development of self-organization skills, personal development through the development of character; fifth, the competent use of all pedagogical influence factors is a factor in the identification and intensification of the motivational mechanisms of the adolescent's personality; sixthly, the use of specially developed technologies for the independent activity initiation will help

to increase the educational and cognitive motivation through the initiation of various types of activity: involuntary, voluntary and post-operative, while the various personal spheres of the student develop.

Our author's approach consists in examining the technologies of distance education in the context of their sense-building potential (the theory of sense formation by I. V. Abakumova) (Abakumova I. V. et al, 2014); and also the description of the possibilities of using each technology type in the context of interactive education, taking into account its meaning-creating role (Bakaeva I., 2016).

Under the technologies of initiating the independent activity of students, we mean the system of teachers and students activity in the educational process, built with the aim of developing students' independent activity in accordance with the principles of the cognitive independence development and using a certain set of methods (in particular, distance education technology).

The activity of the teacher in terms of developing specific technologies that cause the students' educational and cognitive motivation should be based on the system of activity, through the development of different activity types. We propose a scheme for initiating independent activity using various technologies that initiate certain types of student's cognitive activity.

So the independent activity initiation through various technologies, for example, information transfer technologies or developing technologies determine the impact on various information perception channels, which triggers the initiation of involuntary cognitive activity. Interactive technologies such as brainstorming, corporate interaction, game modeling, in addition to teaching and developing effect, cause personal transformation, personal qualities development.

The use of technologies for students' sense formation, such as creative and semantic tasks, problem training, discussion methods that focus on the value sphere, involves the initiation of higher motivation levels related to the personal students senses, and, therefore, learning and knowledge are appropriated by the students as necessary for themselves, and there is activation of post-cognitive activity.

In distance education control plays an important role as an integral component of managed learning. Self-monitoring and self-evaluation of students develop through automated regular monitoring, and, thus, volun-

tary cognitive activity is activated.

The use of information technology in distance education implements other psychological mechanisms. Thus, an increase in the proportion of independent work and a decrease in the role of pedagogical influence makes it possible to make this impact more directional. The teacher in his communication with the students sets an indicative basis for the action, and then the student himself justifies the scheme of activity. The student increases the proportion of self-esteem when he becomes an active figure in his own educational process.

Different level of students knowledge and skills at the entrance to the learning process does not interfere with the learning process, but contributes to a more individualized accompaniment by the teacher of the whole process, when each student crosses new material at his own pace and through his system of tasks. That is, each student takes possession of the material in different degrees and different sides of knowledge, this increases the efficiency and objectivity of monitoring and evaluation.

In distance learning, taking into account the model of translational learning and the use of all available telecommunication channels, the teacher-learner's communication is more intimate, since it is more accessible in time and space, and secondly more individualized and personified. That also contributes to the initiation of cognitive activity of students. The development of students' creative abilities, using creative and semantic tasks is an important quality of distance education.

We propose the author's classification of technologies for initiation of independent activity in distance education. In accordance with the principle of independence and creative thinking gradation; in the classification we can see the interconnectedness and unity of different types of tasks in the learning process, we highlight development technologies, interactive technologies, information transfer technologies, and the technologies for initiating meaning formation. All these groups have within themselves a cluster of technologies that can be used with the help of distance education in various electronic shells (in particular, in Moodle technology).

These technologies use various psychological mechanisms to attract cognitive interest of students, intensify cognitive processes, develop skills of students independent activity, as a result, increase the motivation for independent activity and learning in general. Following I. V. Abakumova, P. N. Ermakov,

V. M. Antipova we classify technologies on various grounds: the degree of their developmental orientation, the degree of interactivity, the methods of information transfer and the meaning-creating potential (Abakumova I. V. et al, 2014).

In our study we distinguish such technologies as developing technologies, which include technologies for working with text, project technology, case studies. These technologies help students learn the skills of self-extracting information, while actively using the cognitive structures of memory, thinking, imagination. These technologies are designed for the intensive development of the personality in terms of the organization of the process in conjunction with other students and in independent activity.

The next class of technologies are interactive technologies as technologies that imply interaction, which are based on the principles of interaction, activity of trainees, reliance on group experience, mandatory feedback. In the context of distance learning, these technologies involve the interaction not only of the teacher and student, but also of students among themselves, as well as of the learner with the teaching medium. These technologies include corporate interaction, brainstorming, decision tree as an interactive technology of collective-group interaction; game simulation and incident method as interactive situational modeling technologies; discussion as an interactive technology for the development of discussion issues.

An important role in the initiation of the students self-educational activity is also in the properly selected and organized technologies of information transfer. In distance education the role of communication is very important. Since there is no moment of psychological contact between the teacher and the student, the structure of perception and understanding of the material changes, the means of perception from the auditory ones change dramatically - in the traditional education, the visual - in the distance learning. To use information more effectively and its role in learning, it is necessary to use various channels of information perception when teaching. In distance education, this is possible with the help of audio-visual information technologies. Where computer technologies (interactive textbooks and lectures, audio and video materials, recordings of lectures and educational films, etc.) appear in all their diversity, but also the more traditional technology of teaching through work with the curriculum also remains relevant and

important in terms of developing self-educational competence.

As a separate group, we sing out the technologies of students' sense formation initiation as the main group of technologists that influence the deeper value-semantic structures of students and the development of their motivation for independent cognitive activity. These are technologies that are oriented not at "the steady mastering of knowledge", not on "active thinking", or on "creative activity", but directly on the sense-formation of students, accompanied by more or less expressed states of experience. With regard to distance learning, the most clearly represented from this class are technologies of creative and semantic tasks and problem training.

Thus, the use of different groups of technologies, oriented to different areas of mental development, which in fact are different in form and content, we use human development resources. Sense-forming potential of technologies allows to deduce independent activity of pupils on a new level, generating new personal senses in training, which lay the foundation for learning throughout life.

2. MATERIALS AND METHODS

We conducted and analyzed the study of students' educational and cognitive motivation dynamics in the process of distance education. The sample consisted of 103 intellectually gifted distance-learning students and 54 full-time students of the Regional Organizational and Methodological Center for Distance Education of Gifted Children, Rostov-on-Don, Russia. The age of participants is 13-18 years old, in school they are studying in grades 7-11. The average age is 15 years.

In the center of gifted students distance education, students are selected among the prize-winners of competitions and contests, that is, the students respond to the idea of intellectually gifted children, as defined by D. B. Bogoyavlenskaya.

The study was conducted in three stages: ascertaining (at the beginning of the academic year), forming (during the academic year) and control (at the end of the school year) experiment.

At the stage of the formative experiment, adolescents were trained in supplementary education programs for 7 months. In the content plan, the filling of distance learning programs for full-time associations coincides. The training was carried out by the same

teachers.

The following methods were used in the study of adolescents:

- “Diagnostics of the educational motivation orientation” (by T. D. Dubovitskaya);
- “Focus on the acquisition of knowledge” (by E.P. Il’in, N.A. Kurdyukova);
- “Diagnosis of the school motivation type in high school students” (by E. Lepeshova);
- Test-questionnaire measuring the achievement motivation (modification of the A. Mehrabian test questionnaire (adaptation of M.Sh. Magomed-Eminov)).

A check of statistical significance was carried out using the Mann-Whitney U-criteria and the Pearson correlation analysis.

Gifted students were divided into three categories: two experimental groups: the first experimental group — regularly and systematically engaged with the use of active technologies; the second group is not systematically applying active technologies in distance education, the third group is the control one.

3. RESULTS

The results of the ascertaining experiment have shown that intellectually gifted distance learning students have a higher level of internal educational motivation, a high focus on acquiring knowledge. The study of

the motivation for achieving in a sample as a whole shows the students’ inclination for both distance form and full-time form to strive to avoid failures. Students in full-time education tend to be more successful at the beginning of training.

The motivation structure analysis at the stage of ascertaining experiment proves that all gifted students in the sample have the predominant motive for realizing the social necessity of education, while students of the distance form have the motive for self-realization on second place, the full-time students have the motive for the studying prestige in the family. Cognitive interest is on third place in all groups.

It is also interesting that the last place in the structure of motivation among all groups is occupied by “Extra-curricular school motivation”, which characterizes intellectually gifted students as purposeful personalities, and the modern school as an institution of the education system, rather than entertainment or leisure. Also, the communication motive is fairly low, although it is higher in the group of full-time students than in the others.

Comparison of the indicators of educational and cognitive students motivation at the stage of ascertaining and control experiment allowed to see the dynamics in the motivational indicators of distance and full-time students (Table 1).

Table 1. Comparison the results of ascertaining and control experiment in the distance and full-time intellectually gifted students groups

Group	Level of internal learning motivation		U - Mann-Whitney criteria, For $p \leq 0.01$	The severity of the motivation for knowledge acquisition		Directivity motivation to achieve	
	Stage 1	Stage 3	Stage 1	Stage 2	Stage 1	Stage 1	Stage 2
Distance students	17,21	16,78	1048.5	10,43	10,50	142,15	141,46
Full-time students	16,82	17,53	757.5,	9,82	9,33	145,47	143,13

The level of internal educational motivation development (according to the methodology of T. D. Dubovitskaya) as a whole in students of distance education has decreased. The indicator of the level of internal teaching motivation development in full-time education students has grown. At the same time, the

intensity of the motivation for the acquisition of knowledge (or cognitive motivation) as a whole has increased in distance learning students, and the number of students in full-time education has decreased.

As a result of the correlation analysis, a direct high significant correlation was found

($r=0.45$, with $p \leq 0.01$) between the parameters “level of development of internal educational motivation” (stage 2) and “the direction of motivation of achievement” in the sample of distance form students, as in full-time students group the correlation between these parameters is not observed (p does not reach the level of statistical significance).

The results of the change in motivational structures in different teenagers groups studying in distance education regularly (group A) using different methods and dealing occasionally via e-mail and assignments (group B) (Table 2) show that the level of development of internal learning motivation increased in students group A, that is, those students who actively mastered tasks that develop independent cognitive activity. In adolescents of group B, this indicator decreased. So the level of educational motivation is also associated with the teaching technologies used, along with cognitive motivation.

Table 2. Comparison the results of ascertaining and control experiment in the groups of distance and full-time intellectually gifted students

Group	Level of internal learning motivation		The severity of the motivation for knowledge acquisition		Directivity motivation to achieve	
	Stage 1	Stage 2	Stage 1	Stage 2	Stage 1	Stage 2
Group A	17,06	17,55	10,51	10,77	140,32	144
Group B	17,57	16,09	10,41	10,25	142,35	139,11

The indicator of the motivation intensity for acquiring knowledge (cognitive motivation) among students in the first group also increased and among the students of group B decreased. Accordingly, the non-systematic initiation of independent activity and the transfer of excessive responsibility for tuition to students does not increase the educational and cognitive motivation.

The achievement motivation in group A has grown in the direction of motivation to achieve success. In the second group, this indicator declined. These patterns can be linked to the real success of teenagers in group A in training activities, participation and victories in olympiads and contests. As well as

the growth of self-esteem of this category in connection with the development of skills and motivation for cognitive independence.

4. DISCUSSIONS

Analysis of the students' motivation structure in the process of the control experiment makes it possible to draw the following conclusions: the value of the indicator “Prestigiousness of studying in the family” in the distance education group has increased, this group also increased “Cognitive interest”, that is the desire to learn new things; but the role of “Communication motivation” among distance education students decreased, which suggests that initially not very sociable young people with the introduction of distance education are even more isolated and reject communication.

The students of the additional education full-time form have increased the motivation to achieve.

The results of the experiment show a significant impact on the students of the full-time studying form the prestige of studying in the family, social approval by the parents, that is, parents rather determine the choice of the education forms and priorities of the adolescent's study, although the motive for comprehending social necessity, achievement and self-realization also occupies leading positions. That is, the students themselves are trying to realize themselves in teaching.

Individual motives: social necessity, achievement and self-realization, cognitive interest, - are dominated among the teenagers of the distance education form and only after that we see the motives connected with the family and parents. That is, students of distance learning are more independent in their choice and self-development.

So, with full-time education, the main emphasis is on the child development in the learning process, that is in the face-to-face meeting. In distance education the motivation development goes indirectly through the mediated interaction of the teacher and the student through the means of education, which means it goes through the subject of study, accordingly, the cognitive motivation develops. Thus the motivation is directed toward the subject.

The achievement motivation of all students (both the experimental and control groups) is reduced in the direction of motivation to avoid failure.

Thus, the competent and systematic application of technologies for the students in-

dependent activity initiation in conditions of distance education has a positive effect on the educational, cognitive motivation and motivation of students' achievement, thereby developing and initiating the development of cognitive independence.

5. CONCLUSIONS

Theoretical analysis of the psychological foundations of the introduction of distance education systems, as well as practical conclusions of DE application, lead to the following generalizations:

1. Distance technologies - are a modern innovative tool for interactive education of students; implementing various models and means of education. The methodology of education with the use of distance technologies is changing, it becomes nonlinear.

2. The role of student development is important in the learning process. Initiation of independent activity as the training subject activity, which independently sets a goal, selects the methods of activity and independently compares the result and purpose of the activity, with the help of the teacher. Distance education has a high development potential - it is the developing opportunities in which a child grows. It is the application of various forms and technologies, based on deep psychological analysis, that helps to build the educational process in the educational aspect.

3. Along with other technologies, we proposed to refer different forms of distance education to different sense formation technologies and to realize them. Technologies of sense formation initiation can be presented in the form of developing technologies, interactive technologies, etc. Using different groups of technologies, oriented to different areas of mental development, different types of development, which are in essence different in form and content, we use human development resources in education. Sense-forming potential of technologies allows to deduce independent activity of pupils on a new level, generating new personal senses in training, which lay the foundation for learning throughout life.

4. An experimental study of the introduction of technologies for initiating independent activities in distance learning has shown that the internal educational motivation and other motivational students' mechanisms depend on the regularity and intensity of the initiating independent activity technology application, in particular, influences the level of

internal learning motivation and the intensity of the acquiring knowledge motivation, motivation to achieve. Consequently, in the process of adolescents' independent cognitive activity the inner essence of cognitive motivation changes, the personal meaning of the teaching changes, other personal meanings are generated, which in turn affects the increase of competence in the self-education field.

5. The systematic cognitive activity of students influences the structure of educational motivation, so distance education students are dominated by individual motives of cognitive activity, so students of distance learning are more independent in their choice and direction of personality.

6. It is important to reduce the motivation of communication among distance learning students, both with the regular application of independent activity technologies and with the episodic. This trend is negative. That's why when developing a distance learning course, it is necessary to use a variety of technologies (interactive lectures, video materials, presentations, wiki-technologies, etc.), combining both independent activities and information and communication technologies (for example, videoconferences, chats and etc.), for the interaction of the teacher and student, and students among themselves. This trend as a basis for the success of distance education is noted by both competent teachers and successful students.

Conflict of interests

The authors declare no conflict of interest.

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STUDYING THE WELFARE OF CHILDREN AT AN EARLY AGE IN THE SYSTEM OF INSTITUTIONAL CARE

Dr. Sofiya Dermendzhieva, South-West University "Neofit Rilski" - Blagoevgrad, Bulgaria
E-mail: sofger@swu.bg

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ABSTRACT

This article discusses the need to develop a unified vision and strategy for enhancing the welfare of children at an early age in the institutional care system in Bulgaria. The methodological basis for the research is the "Quality Framework for Early Childhood Services" (QFECS) of the International Association Step-by-Step (ISSA). A diagnostic tool was developed that explores the guiding principles of good practices in nine different priority areas in three distinct groups in Bulgaria. It analyzes the state of early care and identifies the resources that ensure the quality of services during early childhood.

Keywords:

welfare,

early childhood,

institutional care,

quality of services in nurseries.

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1. INTRODUCTION

As a matter of fact, the nurseries are defined as organizationally separate structures in which medical and other specialists carry out raising, educating and training children from three months to three years of age. In recent years, this definition has lost its relevance, given the results of early childhood and care research. The arguments in this regard are the research and the assertion of the role of prenatal development and the ever-increasing tendency that "the modern family, not only in an economic but also in a deep spiritual crisis, needs both socio-economic and professional - psychological support" (Tasevska, 2008: 12).

Contemporary research confirms that the child's future development is the first 1000 days of his life. According to their research relevance and relevance, actions are under way in Bulgaria aimed at:

- reassessing the status of crèches, respectively, of crèches in the system of institu-

tional care;

- improving public services for early childhood development;

- clarifying the role of the institutions in developing a unified vision and strategy for improving the well-being of children at an early age;

- implementing cross-sectoral cooperation with a view to achieving a broad consensus on the implementation of a more integrated approach;

- approach in children's policies during this period.

An important input in this direction is the initiative of the ISSA, which develops and implements the "Quality Framework for Early Childhood Services" (QFECS).

The present study analyzes the achieved results and the effects of the "Quality Framework for Early Childhood Services" (QFECS) in three distinct groups of United Children's Establishments in Bulgaria.

2. MATERIALS AND METHODS

The "Quality Framework for Early Childhood Services" (QFECS) is based on the vision of the ISSA for a society in which families, communities and experts work together to enable each child to develop their full potential.

The framework outlines the guiding

Corresponding Author

Dr. Sofiya Dermendzhieva, South-West University "Neofit Rilski" - Blagoevgrad, Bulgaria

E-mail: sofger@swu.bg



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principles of good practice in Nine different priority areas and details the indicators that describe ways to effectively implement them.

Its development is in line with other international frameworks and opinions, of which more important are:

- Early Childhood Education and Care (ECEC, 2014);
- Review of Policies and Practices for Monitoring and Quality Assessment of Early Learning and Development in Strong Start III (OECD, 2012);
- Early childhood education and care: to provide all children with the best start in life for tomorrow's world (EC—European Commission, 2011);
- Documents from UNESCO and UNICEF.

According to experts in the field of European early-school policy, the proposal to create a national pedagogical framework covering the period from birth to the start of schooling is characterized by high innovation and prospect, given the opportunity to provide “more effective management of the targeted system of social care in early and preschool age” (Mihova, 2012: 126).

Exploring the European standards towards children, Kaleynska includes the child welfare among the basic children's rights to be guaranteed by the Union policies (Kaleynska, 2014:125).

At a conceptual level, the Framework introduces new approaches to fostering care and well-being in early childhood, and focuses on updating policies on early childhood development.

At the instrumental level, its significance is expressed in the definition of Nine priority areas, the deployment of which ensures the parity of meeting the needs of all stakeholders: children, families and professionals in specialized institutions.

Recognizing the special needs of children from the birth to the age of three, the ISSA formulates specific principles and indicators in delivering high quality services to children of the elderly.

The framework contains potential in the context of the modern sustainable development paradigm, as it implies the idea that “education should not only be life-wide but also diversified, and learning intensively integrated into all major activities of life” (Dyankova, 2018a: 96). Detailed detailing of the principles characterizing the individual priority areas reflects the RCDC's potential for measuring the quality of services in early childhood.

At an applied level, the effectiveness of the Framework is contained in the substantiated description of specific indicators for recognizing the principles that basically define childcare at an early age.

Outlined practical expedience makes the Framework a reliable indicative tool, tracking logical consistency in identifying the results and effects of its application in social and institutional practices.

2.1. Research program

The research program has been deployed in four stages:

First stage: information, during which the following activities were carried out:

- meeting with the clergy teams of three clerical groups from the “Zvenche” Kindergarten and Kindergarten “Zname na mira”, Vratsa and presenting the goals of the study;
- Establishing a timetable for conducting trainings with participants for the implementation of the “Quality Framework for Early Childhood Services” in the Task Force;
- Establishment of a timetable for visitor group visits for the purpose of monitoring and evaluating childcare provision at an early age after the training provided;
- Validation of the Early Childhood Quality Assessment tools: Monitoring Surveillance Daily of the Monitoring Expert and “Self-Assessment Daily Report” of the Jaslitte Team Specialists.

Stage Two: A training course in which cluster specialists are involved in training modules.

Content-based trainings present the guiding principles of good practice in Nine Different Priority Areas for Quality of Service in Early Childhood and detail the ways for their effective implementation.

Third stage: appraising, in which the actual monitoring and assessment of the well-being of the children at an early age is carried out in accordance with the principles and priorities of the Framework.

Stage four: Final, analyzing the results and effects of RACC implementation.

3. RESULTS

The analysis of the results and the evaluation of the effects is based on the data processing of the two main instruments:

- “Daily Surveillance Report”, completed by the expert in the monitoring of the groups after the training;
- “Daily self-assessment report” after the training, reflecting the reflexion of the cluster teams on the guiding principles and ways to apply best practices in the 9 priority areas of the “Quality Framework for Early Childhood Services” (QFECS).

In substance, the described tools are identical, allowing their results to be compared and analyzed.

According to modern researchers, the observed correlations and discrepancies in the percentage ratio of the marked statements take into account trends typical of such studies:

- self-evaluation is a process in which the subjects unconsciously choose those degrees in the stated statements that rather reflect their “desirable” behavior;

- Surveillance is a process in which subjects dominate their focus on FACTS, reflecting difficulties in implementing “expectant” behavior (Dyankova, 2018b: 11).

Conditional compliance with these two trends is in the direction of subsequent analysis.

The Pilot Implementation of a “Quality Framework for Early Childhood Services” in three distinct groups in the municipality of Vratsa examines the state of early childhood care.

The focus of the study is defined in the principles and indicators of Nine priority areas.

The tables contain the quantitative values and percentage equivalents of the results of “Daily report self-assessment” of the members of the creche teams and “Daily report for observation” carried out by the expert monitoring.

Their discussion builds on the indicators that reveal the extent of resource outcomes that ensure the quality of services in early childhood.

3.1. Priority area “Relationships”

Table 1. Principle 1: Relationship with each child recognizes and values its uniqueness, competencies, personal style of communication, preferences and opinion.

Indicator 1.1.	It responds to the child's signals about his or her desires, interests, and choices.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	3	33.3	5	55.56
self-assessment	0	00.0	0	00.0	10	100.0
Indicator 1.2.	He meets the child in ways that correspond to his temperament and personality.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	2	22.2	7	77.78
self-assessment	0	00.0	0	00.0	10	100.0
Indicator 1.3.	It shows to the child that what he says is listened to.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	3	33.33	4	44.44
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.4.	An understanding of the child's preference for the tempo, time and intensity of the speech, movements and facial expressions is shown.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	0	00.00	5	55.56
self-assessment	0	00.0	4	40.40	6	60.00
Indicator 1.5.	It interacts with the child, with respect for him as an active researcher and a capable participant.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	1	11.11	8	88.89
self-assessment	0	00.0	0	00.00	10	100.0

Table 2. Principle 2: Relationships are deepened by interactions that create a strong attachment.

Indicator 2.1.	Close proximity to the child is maintained.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	1	11.11	8	88.89
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 2.2.	Attention is drawn to the child's attempts to communicate (verbal and non-verbal).					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	5	55.56	4	44.44
self-assessment	2	20.0	1	10.00	7	70.00
Indicator 2.3.	It reacts quickly to signs of stress in a soothing and child-friendly way.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 2.4.	Children's feelings are respected, including during changes.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.00
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 2.5.	Reaction is consistent and predictable to the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	6	66.67	3	33.33
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.6.	Helpful to the child to anticipate the consequences.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	5	55.5	4	44.44	0	00.00
self-assessment	0	00.0	7	70.00	3	30.00

Table 3. Principle 3: Relationships are promoted through strategies that promote dialogue.

Indicator 3.1.	Visual contact with the child is maintained during communication (where it is culturally accepted).					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	5	55.56	4	44.44
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.2.	The response is warm and loving towards the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.00
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.3.	A calm and attentive expression is preserved while communicating with the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	5	55.56	4	44.44
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.4.	A tone of voice is used that demonstrates interest, tenderness, concern and understanding of the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.00
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 3.5.	Body language is used, which is calm, open and expresses interest in the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.00
self-assessment	0	00.0	3	33.33	7	70.00

Table 4. Principle 4: Relationships between the children themselves are stimulated.

Indicator 4.1.	The importance of peer relationships in very young children is recognized.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	9	100.0	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.2.	Social interactions between children are encouraged through modeling, careful guidance and, where necessary, intervention.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	8	77.78	1	11.11
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.3.	The child is encouraged to express their emotions appropriately using a language that is available to them.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	3	30.00	7	70.00
Indicator 4.4.	Helping very young children to understand that others also have needs and feelings, and that they need to be taken into account.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	9	100.0	0	00.0
self-assessment	0	00.0	1	10.00	9	90.00

Table 5. Principle 5: Relationships support / facilitate children under the age of three in changing their day-to-day and extraordinary activities.

Indicator 5.1.	The individual nature of each child's approach to change is recognized and supports these changes.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	8	88.89	1	11.11
self-assessment	0	00.0	8	88.89	1	11.11
Indicator 5.2.	Communication and coordination with all other adults who are involved with the child at the time of change is maintained.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	1	11.11	8	88.89
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 5.3.	Daily activities are regularly evaluated to ensure that the child's needs are met by observing the child's reactions.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	1	10.0	2	20.00	7	70.00
Indicator 5.4.	Regular communication with parents / families about activities to ensure their consistency, is maintained.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	5	55.56	4	44.44
self-assessment	1	10.0	1	10.00	8	88.89

3.2. Priority area “Family and Community”

Table 6. Principle 1: Knowing and respecting families and communities affirms their relationship with them and between them.

Indicator 1.1.	The specialist studies the values, beliefs, assumptions and practices of the family and applies them whenever possible.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	9	100.0	0	00.00
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 1.2.	The specialist studies the communities in which children live and applies this knowledge to meet the needs of children to create learning approaches.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	1	10.0	7	70.00	2	20.00
Indicator 1.3.	The specialist builds on the strengths of the family and community, and when it is possible to adopt and incorporate "knowledge funds" that are part of every family and community.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	8	88.89	1	11.11
self-assessment	2	20.0	4	40.00	4	40.00
Indicator 1.4.	The specialist personalizes relationships and services for families in the way they best meet their needs.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	3	33.33	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.5.	The specialist encourages families to learn from one another and to support them.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	7	77.78	2	22.22
self-assessment	1	10.0	3	30.00	6	60.00

Table 7. Principle 2: Sensitive, respectful and equal communication with families supports the development and learning of children.

Indicator 2.1.	The specialist engages in continuous, effective communication with parents / families to share information about the child's experiences, health and needs.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 2.2.	The specialist spends time listening carefully by being unbiased to the families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	6	66.67	3	33.33
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 2.3.	The specialist uses different forms of communication with families, including their language and communication preferences.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	6	60.00	4	40.00
Indicator 2.4.	The specialist maintains the confidentiality of all information about the child and his / her family.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	1	11.11	8	88.89
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 2.5.	The specialist moderates disagreements, reports and supports in ways that lead to positive results for the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.6.	The specialist engages in continuous and effective communication with parents / families to share information about the child's experiences, health and needs.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	4	44.44	3	33.3
self-assessment	0	00.0	1	10.00	9	90.00

Table 8. Principle 3: Services are best provided in partnership with the family.

Indicator 3.1.	The right and responsibility of each family to be involved in making the final decisions about the development, learning, well-being and services provided to the child is guaranteed.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 3.2.	Family-specific goals, needs and cultural practices are respected and mutually agree activities to enhance continuity between home and other backgrounds.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	3	33.33	5	55.56
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 3.3.	Strengthening and strengthening parenting practices while offering proven parental education and support when needed.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	6	66.6	3	33.33	0	00.00
self-assessment	2	20.0	6	60.00	2	20.00
Indicator 3.4.	The involvement and commitment of fathers and other family members to the care and learning of the child is encouraged.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00

Table 9. Principle 4: Partnerships based on co-operative and community-based cooperation best support families and children.

Indicator 4.1.	The specialist guarantees trouble-free transitions by negotiating with various services to support families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	3	33.33	6	66.67
self-assessment	9	90.0	1	10.00	0	00.00
Indicator 4.2.	The specialist actively engages local communities to promote and promote the rights of children and families through advocacy activities that go beyond local communities.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	8	80.0	0	00.00	2	20.00
Indicator 4.3.	The specialist creates opportunities for community members to be involved and take part in early childhood service activities.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	6	66.6	3	33.33	0	00.00
self-assessment	8	80.0	1	10.00	1	10.00
Indicator 4.4.	The specialist notes that very young children are part of the community and play an important role in their early life experience.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	3	33.33	5	55.56
self-assessment	0	00.0	4	40.00	6	60.00

3.3. Priority area “Inclusiveness, diversity and values of democracy”

Table 10. Principle 1: Inclusion provides equal opportunities for each child and family to participate regardless of gender, race, ethnic origin, culture, mother tongue, religion, family structure, social status, age or special needs.

Indicator 1.1.	The specialist demonstrates awareness of the values, culture, beliefs, assumptions and attitudes about how they affect communication, interactions and relationships between children and their families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	1	10.0	8	80.00	0	00.00
Indicator 1.2.	The specialist treats each child and his family with respect and dignity.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.3.	The specialist adapts the environment, learning practices and interactions so that those with different physical and mental abilities or who speak different languages can also participate fully.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 1.4.	The specialist draws attention to gender and other stereotypes (including stereotypes about poverty) in the materials and learning practices provided to children and / or their families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	3	33.3	2	20.00	5	50.00
Indicator 1.5.	The specialist provides a level playing field for all girls and boys in the services for young children.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	1	10.00	10	100.00

Table 11. Principle 2: Understanding and appreciating the diversity that exists among children, families and communities builds childhood identities.

Indicator 2.1.	Includes interactions, learning practices and materials that reflect the cultural, linguistic, family and individual diversity of children and their families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	5	55.56	1	11.11
self-assessment	0	00.0	9	90.00	1	10.00
Indicator 2.2.	Helps family upbringing with children, in addition to cultural and language styles wherever possible. Where appropriate, appropriate support and guidance is offered.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	7	70.00	3	30.00
Indicator 2.3.	Includes mother tongue (s) in interactions with the child and encourages families to use it in their interactions with the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	5	55.56	1	11.11
self-assessment	4	40.0	3	30.00	3	30.00
Indicator 2.4.	It actively promotes the expression of cultural identities.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	2	22.22	4	44.44
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.5.	Supports the development of all the identities of the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	3	30.00	7	70.00
Indicator 2.6.	It demonstrates sensitivity to the different roles within the family that it decides.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	3	30.00	7	70.00

Table 12. Principle 3: Promoting the sense of individuality, opinion and decisions of each child, motivating democratic values and practices.

Indicator 3.1.	It offers great opportunities for children to make choices.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	2	22.22	6	66.67
self-assessment	0	00.0		00.00	10	100.00
Indicator 3.2.	Encourages children to express themselves in numerous ways, based on multiple language, gesture and other non-verbal forms of communication.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 3.3.	Supports parents in creative listening and responding to children.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	5	55.56	1	11.11
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.4.	Pricing, encouraging and looking for the individual contribution of children to experiences, knowledge and expression in an open and unbiased way.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	1	11.11	5	55.56
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 3.5.	It implements effective positive guiding strategies that support the restoration of justice and the preservation of dignity.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	5	55.56	0	00.00
self-assessment	0	00.0	0	00.00	10	100.00

Table 13. Principle 4: Inclusion is promoted through partnerships with families.

Indicator 4.1.	Dialogue with families about how services can be improved to show respect and appreciate diversity.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	5	55.56	0	00.00
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 4.2.	Dialogue with families about how services can be more inclusive, including advocacy and support for families with children with special needs.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	1	11.11	5	55.56
self-assessment	0	00.0	3	30.00	7	70.00
Indicator 4.3.	Work with families and specialists to create an inclusion plan. Discusses in this plan the successes and challenges, observations and reflections related to the individual work with the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	4	40.0	3	30.00	3	30.00

3.4. Priority area “Health, well-being, nutrition”

Table 14. Principle 1: Every child's health is encouraged.

Indicator 1.1.	Providing a safe environment that promotes development and well-being.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	3	33.33	6	66.67
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 1.2.	Promoting and maintaining effective hygiene practices that control the spread of infectious diseases and support healthy habits.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	2	22.22	7	77.78
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 1.3.	Immunization information and timetables are provided to encourage parents to immunize their children in a timely manner.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 1.4.	There are procedures to prevent and deal with injuries that include first aid, child's heartbeat, and home and offsite safety education.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 1.5.	The need for regular health checks and monitoring of their outcomes is underlined.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.6	1	11.11
self-assessment	0	00.0	1	10.0	9	90.00
Indicator 1.6.	It satisfies the child's need for physical activity, as well as rest and sleep.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	2	22.22	6	66.67
self-assessment	0	00.0	0	00.00	10	100.0

Table 15. Principle 2: Meeting the nutritional needs of the child.

Indicator 2.1.	Breastfeeding is supported and information about it and the conditions facilitating it are provided.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	5	55.56	0	00.00
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 2.2.	Support (including through modeling) healthy eating habits for young children; there is a choice of healthy, age-appropriate foods that are culturally and regionally tailored.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	6	66.67	2	22.22
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 2.3.	Ensure that food meets the dietary requirements of children and takes into account allergies to certain foods.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	7	77.78	2	22.22
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 2.4.	Hygienic procedures for storing, preparing and serving food are followed and encouraged.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	7	77.78	2	22.22
self-assessment	0	00.0	7	77.78	2	22.22
Indicator 2.5.	Researching and discussing with families (and their services), food and hygiene practices that are provided in early childhood care institutions.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	5	50.00	5	50.00

Table 16. Principle 3: Health care and nutrition are a source of pleasure and effect.

Indicator 3.1.	Promoting nutrition and care as a source of pleasure as part of the relationship between care and learning.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.2.	The active participation of the child in these activities is encouraged.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	3	33.33	6	66.67
self-assessment	1	11.1	3	33.33	6	66.67
Indicator 3.3.	Activities related to nutrition and care that meet the individual needs of children are provided and encouraged.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	5	55.56	1	11.11
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.4.	There are close and positive interactions during nutrition and care that enhance attachment.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	4	40.00	6	60.00

Table 17. Principle 4: Every child is protected from violence, lack of care and injury by promoting appropriate practices, prevention and intervention.

Indicator 4.1.	The specialist monitors the mental and physical condition of children, identifies signs of violence and / or lack of care that affect children's health and informs relevant authorities.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	2	22.22	6	66.67
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 4.2.	The specialist follows established procedures for recommendations and work with families when children show signs of atypical behavior, depression or anxiety.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 4.3.	The specialist maintains families during a crisis, stress, and maternal or depression.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	9	100	0	00.00	0	00.00
self-assessment	2	20.0	8	80.00	0	00.00
Indicator 4.4.	The specialist knows the roles, legal responsibilities and procedures to protect children at risk of violence and / or lack of care, including knowledge of how to keep in touch with a family suspected of violence against the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	3	33.33	2	22.22
self-assessment	1	10.0	7	70.00	2	20.00

3.5. Priority area “Development and Learning”

Table 18. Principle 1: The development of children is holistically approached.

Indicator 1.1.	The specialist should follow and / or develop a curriculum that covers all areas of experience in the child's holistic development.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.2.	The specialist integrates the child's previous experience in introducing new experiences.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	2	22.22	7	77.78
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.3.	The specialist encourages and uses diverse approaches to learning children.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 1.4.	The specialist offers and encourages a combination of varied and predictable experiences that encourage study, experimentation, independent research, and the child's creativity.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	7	70.00	3	30.00

Table 19. Principle 2: Care is seen as an opportunity for development and learning.

Indicator 2.1.	Daily nutrition and health care are encouraged to stimulate children's active participation and autonomy.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	2	22.22	7	77.78
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 2.2.	Care and transitions are encouraged that encourage the child to discuss and collaborate in advance, taking into account the child's mood or attention.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	6	60.0	2	20.00	2	20.00
Indicator 2.3.	Opportunities are being used to encourage child development in an integrated way in the context of naturally occurring events.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	0	00.0	5	50.00	5	50.00
Indicator 2.4.	Caring activities are used to talk to the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	3	33.33	5	55.55
self-assessment	0	00.0	0	00.00	10	100.00

Table 20. Principle 3: Play is a source and strategy for development, well-being and learning.

Indicator 3.1.	The specialist encourages the game as a source of development, exploration, discovery, engagement and joy.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	1	11.11	7	77.78
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.2.	The specialist encourages the development and age-appropriate, gaming experience based on the knowledge of each child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.3.	The specialist realizes the role of the key adults they play in the game and the importance of being close to the child during these experiences.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 3.4.	The specialist provides opportunities for children to play with other children and to enjoy pleasant moments together in ways that encourage recognition and collaboration with others.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 3.5.	The specialist encourages the game by providing open resources that support creative discovery.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	0	00.00	10	100.00

Table 21. Principle 4: Development and learning is promoted through support.

Indicator 4.1.	Responding to children's signals, actions and comments by providing verbal and non-verbal advice, assistance or questions, descriptions and tips, and multi-faceted communications.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	7	77.78	1	11.11
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 4.2.	Learning new concepts and skills is related to the child's previous knowledge and experiences.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	0	00.00	10	100.00
Indicator 4.3.	Children are encouraged to take appropriate risks to encourage their development and learning by taking an active part in solving their problems.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	8	88.8	0	00.00	1	11.11
self-assessment	0	00.0	1	10.00	9	90.00

3.6. Priority area “Monitoring, Documentation, Reflection and Planning”

Table 22. Principle 1: Monitoring provides important information about child development, learning, interests, strengths and needs.

Indicator 1.1.	The specialist values the act of observing the verbal and non-verbal behaviors of the child as well as the context for concrete behavior as a way to better understand the child and motivate its decisions.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	9	100.0	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.2.	The specialist participates in a number of observations of child growth, language, development and learning, daily and over time.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	8	88.89	1	11.11
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.3.	The specialist uses surveillance to determine if changes to learning practices are necessary with the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	1	11.11	5	55.56
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.4.	The specialist uses observation to mark and document the achievements of the children.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	1	11.11	5	55.56
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 1.5.	Uses monitoring and screening tools as a way of identifying possible delays in development, disability, malnutrition, chronic illness, atypical behavior.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	3	33.3	6	66.67	0	00.00

Table 23. Principle 2: Monitoring is most useful when documenting, analyzing and sharing with parents / families and other people involved in the care and well-being of the child.

Indicator 2.1.	The specialist records the observations in a comprehensible and objective way so that they can be shared easily with others who also work with the child (with permission from the parents).					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	0	00.0	3	30.00	7	70.00
Indicator 2.2.	The specialist uses various tools as appropriate to record and / or evaluate observations, including incidental recordings, stories, videos, photos, audio recordings, dictations, drawings and references.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	6	66.6	2	22.22	1	11.11
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.3.	The specialist uses a system to organize monitoring and file keeping so that information can be used for sharing, screening, evaluation, and planning purposes.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	7	77.7	2	22.22	0	00.00
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.4.	The specialist shares observations with families and other professionals (when parental permission is granted) working with the child to ensure seamless care for the child and engaging in any interference and involvement of other services.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 2.5.	The specialist specifies specific hours for reviewing the documentation with other key adults involved in child care.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	8	88.8	1	11.11	0	00.00
self-assessment	4	40.0	2	20.00	4	40.00

Table 24. Principle 3: The joint discussion of children's observations and the documentation of their learning and socialization experiences motivates the review of professional practices and their future improvement.

Indicator 2.1.	The specialist records the observations in a comprehensible and objective way so that they can be shared easily with others who also work with the child (with permission from the parents).					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	0	00.0	3	30.00	7	70.00
Indicator 2.2.	The specialist uses various tools as appropriate to record and / or evaluate observations, including incidental recordings, stories, videos, photos, audio recordings, dictations, drawings and references.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	6	66.6	2	22.22	1	11.11
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.3.	The specialist uses a system to organize monitoring and file keeping so that information can be used for sharing, screening, evaluation, and planning purposes.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	7	77.7	2	22.22	0	00.00
self-assessment	0	00.0	4	40.00	6	60.00
Indicator 2.4.	The specialist shares observations with families and other professionals (when parental permission is granted) working with the child to ensure seamless care for the child and engaging in any interference and involvement of other services.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 2.5.	The specialist specifies specific hours for reviewing the documentation with other key adults involved in child care.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	8	88.8	1	11.11	0	00.00
self-assessment	4	40.0	2	20.00	4	40.00

Table 25. Principle 4: Long-term and short-term planning is based on individual children's strengths and needs.

Indicator 4.1.	Observations and documentation are used to develop long-term plans for child learning, including any changes that need to be made to the interactions of the adult with the child and the environment.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	7	77.7	2	22.22	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.2.	Plans are created for the opportunities for future learning activities based on the responses, interests, strengths and needs of each child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	8	88.8	1	11.11	0	00.00
self-assessment	0	00.0	9	90.00	1	10.00
Indicator 4.3.	Plans are followed, following each child's management, as it interacts with materials, people and nature in the surrounding environment, making changes when and when it is needed.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	0	00.0	6	60.00	4	40.00

3.7. Priority area “Supporting Environments “

Table 26. Principle 1: The environment encourages the emotional well-being of each child.

Indicator 1.1.	The specialist demonstrates familiarity with stressors in the surrounding environment and strives to reduce them.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	3	33.33	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.2.	The specialist provides a place for rest, sleep and relaxation.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	2	22.22	8	88.89
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.3.	The specialist has expectations and directs the behavior of the child in a way that matches and is appropriate for the age of the child.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.4.	The specialist maintains a physical and emotional environment that minimizes conflicts and fosters positive interactions among young children by providing sufficient resources and positive interference.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00

Table 27. Principle 2: The environment is safe, clean and free from all contamination and controlled.

Indicator 2.1.	The specialist provides and prevents safety problems.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	1	11.11	7	77.78
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 2.2.	The specialist ensures that the environment is clean, hygienic and free from dirt.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	1	11.11	7	77.78
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 2.3.	The specialist monitors the good condition of the materials and furniture.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	2	22.22	6	66.67
self-assessment	0	00.0	0	00.00	10	100.0
Indicator 2.4.	The specialist is convinced that children are under constant observation, even when they are sleeping.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	0	00.00	9	100.0
self-assessment	0	00.0	0	00.00	10	100.0

Table 28. Principle 3: The environment is hospitable, accessible and comfortable.

Indicator 3.1.	The specialist arranges space for children to respond to their current needs, interests and the ability to move freely.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	2	22.22	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 3.2.	The specialist is convinced that the equipment and materials areas required for care are conveniently located.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 3.3.	The specialist arranges space so that family members feel comfortable and well during all inspections.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 3.4.	The specialist provides spaces that are warm, soft and predispose to proximity.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	2	22.2	1	11.11	6	66.67

Table 29. Principle 4: The environment stimulates children's play, discovery, independence and initiative.

Indicator 4.1.	The environment is organized in a way that supports game, discovery, autonomy and leadership (decision-making).					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	1	11.11	8	88.89
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.2.	Game materials are provided to stimulate all areas of development.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	2	22.22	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.3.	A variety of open-source materials are provided to combine to stimulate gameplay and discovery.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.4.	Children are provided to open spaces for at least part of the day.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	1	11.11	6	66.67
self-assessment	0	00.0	2	20.00	8	80.00
Indicator 4.5.	Providing an environment that encourages children to be active participants and take appropriate risks.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 4.6.	The specialist actively participates as part of the group as a source of help for children when needed as a gaming partner but provides enough space for children to be independent.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	2	22.22	7	77.78
self-assessment	0	00.0	1	10.00	9	90.00

Table 30. Principle 5: The environment encourages each child's sense of belonging.

Indicator 5.1.	The specialist shows pictures of children and their home environment that show that the child belongs to the surrounding environment.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	8	80.0	0	00.00	2	20.00
Indicator 5.2.	The specialist shows respect for all childhood experiences and self-expression.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	1	11.11	8	88.89
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 5.3.	The specialist provides materials and resources from the local community and culture as well as from nature.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	0	00.00	6	66.67
self-assessment	0	00.0	1	10.00	9	90.00

3.8. Priority area "Professional Development"

Table 31. Principle 1: Knowledge of children's development and learning contributes to the quality of early childhood experiences.

Indicator 1.1.	The specialist achieves competence and ability to interpret basic theories of development, neurology and education as a complement to related research results.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 1.2.	The specialist has a holistic view of development and learning about the child's overall experiences.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	4	44.44	5	55.56
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.3.	The specialist identifies the main areas of experience in the child's holistic development to communicate sensitively with the family.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	1	11.11	5	55.56
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 1.4.	The specialist applies knowledge to play an advocacy role when development is hindered in some way by actively making positive changes to the environment, the curriculum and the nature of relationships that support optimal learning.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	2	22.22	5	55.56
self-assessment	0	00.0	2	20.00	8	80.00

Table 32. Principle 2: Continuous participation in professional development activities improves the quality of practice.

Indicator 2.1.	The specialist seeks to support and reinforce practice through professional development activities (vocational training and staff training under supervision, work in vocational learners' communities, etc.) in all aspects of this Framework, including skills for developing human relationships.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	3	33.33	6	66.67
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 2.2.	The specialist uses current self-assessment and reflection practices.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	2	22.22	5	55.56
self-assessment	1	10.0	8	80.00	1	10.00
Indicator 2.3.	The specialist is involved in learning communities with other people who work with the same or similar children and families to engage in in-depth dialogues about their practice, its impact on children, and how it can be improved to support learning and developing children.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	1	11.11	5	55.56
self-assessment	1	10.0	1	10.00	8	80.00
Indicator 2.4.	The specialist develops strategies for responding to the unpredictability and insecurity caused by rapid changes in society as a whole, 21st century family life and early childhood care.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	0	00.0	9	90.00	1	10.00
Indicator 2.5.	The specialist demonstrates the understanding that personal problems and potential prejudices or barriers can affect the relationship with children and families and seek professional counseling and further training if necessary.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	7	77.78	0	00.00
self-assessment	0	00.0	5	50.00	5	50.00

3.9. Priority area "Cross-sectoral cooperation"

Table 33. Principle 1: Interaction and cooperation with other professionals and services in the same and / or different sectors, such as ensuring privacy, confidentiality and dignity of children and families, improving the quality of service delivery.

Indicator 1.1.	The specialist provides information, referrals and links to other family services that they or the child need while providing privacy, privacy and dignity.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	5	55.5	4	44.44	0	00.00
self-assessment	1	10.0	0	00.00	9	90.00
Indicator 1.2.	The specialist carefully leads accurate dossiers for all children and their families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	0	00.0	6	66.67	3	33.33
self-assessment	1	10.0	0	00.00	9	90.00
Indicator 1.3.	The specialist regularly cooperates with colleagues from other services, respecting the position, responsibility and expertise of the other.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	0	00.00	5	55.56
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.4.	The specialist critically analyzes his / her own professional preferences, prejudices, biases, judgments, and practices that can deliberately or unintentionally affect children and families.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	0	00.00	5	55.56
self-assessment	0	00.0	3	30.00	7	70.00
Indicator 1.5.	The specialist communicates and discusses with other experts who also provide services for children under the age of three in order to learn more about how to ensure a smooth transition and coordination between their own service and others.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	3	33.33	2	22.22
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 1.6.	The specialist maintains complete confidentiality of all information about the child and the family and discloses it only if there is explicit written permission from the parents or if the child is at risk.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 1.7.	The specialist supports dialogue with colleagues and other service providers on how best to advocate for the adoption of democratic and inclusive approaches to services for very young children.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	4	44.4	5	55.56	0	00.00
self-assessment	7	70.0	1	10.00	2	20.00

Table 34. Principle 2: Consultation with an Early Child Diagnostic Specialist for formal screening and assessment where necessary prevents multiple developmental delays and atypical behaviors later in life.

Indicator 2.1.	The specialist documents observations to help early childhood specialists identify children who may have delayed development or disability.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	6	66.67	2	22.22
self-assessment	1	10.0	6	60.00	3	30.00
Indicator 2.2.	The specialist uses valid, reliable and appropriate screening tools recommended by early childhood diagnostics to monitor the condition of children who are found to be lagging behind, have disabilities and atypical behaviors.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	8	88.8	1	11.11	0	00.00
self-assessment	7	70.0	1	10.00	2	20.00
Indicator 2.3.	The specialist is open and collaborates with early childhood specialists to apply the proposed activities to children who are found to have developmental or disability impairment.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	0	00.0	8	80.00	2	20.00
Indicator 2.4.	The specialist is careful when talking to parents and families about visiting early childhood diagnostics, or about slowing down development or disability.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	1	11.1	8	88.89	0	00.00
self-assessment	0	00.0	1	10.00	9	90.00
Indicator 2.5.	The specialist draws and relies on parent /family information as part of the ongoing evaluation process when working with children with developmental or disability impairment.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	2	22.2	6	66.67	1	11.11
self-assessment	0	00.0	7	70.00	3	30.00
Indicator 2.6.	The specialist uses the information that can be obtained from the official tests conducted by early childhood specialists in a confidential and attentive way.					
Statements	Does not apply		Sometimes apply		Apply always	
Results	Nr.	%	Nr.	%	Nr.	%
observations	3	33.3	6	66.67	0	00.00
self-assessment	0	00.0	7	70.00	3	30.00

4. DISCUSSIONS

Identified as the first priority in the “Quality Framework for Early Childhood Services” (QFECS), **Area 1 “Relationships”** emphasizes that social relations are at the heart of the development of children under the age of three. The principles of adjoining indicators laid down in this area affirm that “the enrichment of children’s relationships and emotional experiences, the absorption of social norms, the stimulation of self-awareness are basic structural components of the child’s social development” (Derrijan and Valchev, 2015: 36).

The presented results of the surveyed priority area reveal that responsive, equitable and equal interactions have been developed in the Jesuit groups under investigation. The high degree of their manifestation is revealed by the statements made in the Daily Self-Assessment Report of the members of the cluster teams participating in the study.

Relatively close, the values of observations and self-assessment in the column “Applying permanently” are an expression of the conscious aspirations of professionals to promote relationships with the child that support their initiative in the process of communication - see “Relationships”: Principle 1, Indicators 1.2 , 1.5; Principle 2, Indicators 2.1, 2.3, 2.4; Principle 3, Indicators 3.2, 3.4; Principle 5, Indicators 5.1, 5.2.

The results that reflect the highlighted statements in the “Partially applied” column should also be disregarded. Their presence is an indicator that definitely signals the still dominant attitudes of some of the team’s cluster representatives that their role is only related to meeting the underlying needs of the child in the middle age. This observation highlights that institutional care professionals need targeted work to promote the understanding that “the earliest social task is attachment” (Tasevska, 2014: 39).

The indicators in **Area 2 “Family and Community”** focus on the quality of early childhood services that ensure a climate of tolerance and dialogue between the institution’s and the family’s representatives.

The results of the survey show that monitoring scores compared to self-assessment of crèche representatives overlap to a high degree - see Principle 2 “Sensitive, respectful, and equal family communication supports the development and learning of children.”

By itself, this fact reveals the already formed attitudes of the representatives of the cluster teams to communicate with families in

ways that show respect and appreciation, as well as to jointly discuss all decisions about the development, well-being and learning of their children.

The results reflecting Principle 3 “Services are best provided in partnership with the family” and Principle 4 “Partnerships based on cooperative and community-based cooperation best support families and children” reveal discrepancies in the “Daily Surveillance Report” and in the “Daily self-assessment report”. Their analysis is the basis for the following conclusions:

- Clearly cluster teams take action to implement an institutional policy related to the transformation of “working with the family” into “interacting with parents.” We find a testimony in the highlighted responses to the Families and Community indicators, Principle 3, Indicators 3.1, 3.2, 3.4, 3.5;

- there are still no practices that ensure “safe transition” where specialists can “negotiate with different services to support families” - see Family and Community, Principle 4, Indicator 4.1;

- despite the theoretical preparedness of the cluster staff, there is still insufficient use of “opportunities for members of the community involvement and participation in early childhood services” - see Family and Community, Principle 4, Indicators 4.2 and 4.3.

This task “is complicated by the fact that an individual approach is necessary, which in turn makes the standardization method virtually impossible” (Biletska, 2017: 66), ie the theoretical preparedness of the specialists depends on the level of their professional reflexive competence.

Undoubtedly, the Principles in the **Third Priority Area “Inclusiveness, Diversity and Values of Democracy”**, correspond directly to the indicators of the first and second priorities of the “Quality Framework for Early Childhood Services” (QFECS).

Confessing the values of democracy by all actors in the childcare care interactions up to the age of 3 are a strong indicator of a change in the provision of services in crèches.

The qualitative analysis of responses from the Third Priority Area reveals the following more significant summaries:

- the prevailing answers in the “Partial Apply” and “Applying Permanently,” both marked in both the Daily Surveillance Report and the Daily Re-Port for Self-Assessment, reveal the unbalanced implementation of activities that ensure the promotion of the right of every child and his /her family be included,

respected, appreciated - see area “Inclusion, diversity and values of democracy”, Principle 1, Indicators 1.1, 1.3, 1.4; Principle 2, Indicators 2.1, 2.3, 2.4; Principle 3, indicators 3.2, 3.3, 3.5; Principle 4, Indicators 4.1, 4.3, 4.4;

- the identified partiality in this direction unambiguously reveals the need to upgrade the competencies of the cluster teams in areas that are definitely important for enhancing the quality of early childhood services - see “Inclusion, Diversity and Values of Democracy,” Principle 2, Indicators 2.1, 2.2, 2.3; Principle 3, indicators 3.2, 3.3, 3.5; Principle 4, Indicators 4.1, 4.3, 4.4;

- it is positively commented on the fact that they are marked in this way (mostly in the “Partially applied” and “Applying permanently” scales), the responses to the study reveal the “awareness” of the key weight of the period from 0 to 3 years for the development of all the identities of the child - see area “Inclusion, diversity and values of democracy”, Principle 3, Indicators 3.1, 3.2, 3.3 and 3.4.

It can be summed up that the results of the monitoring program in this priority area reveal the readiness of the clergy specialists to formulate clearer organizational messages regarding their professional inclusion in the social and emotional adaptation of the children of the elderly.

At first reading, the **Fourth Priority Area** of the “Quality Framework for Early Childhood Services” (QFECS) suggested results that would not give rise to any doubts about the quality of health, well-being and nutrition services for children under 3 years of age.

A deeper analysis of the survey results reveals inconsistencies in the marked responses from the monitoring and the members of the cluster teams.

In fact, “Claiming Health” is the most consistently highlighted in applying Principle 1 “Every child’s health is being promoted” - a result that is reflected in Indicators 1.1, 1.2, 1.3, 1.4, 1.5, 1.6, 1.7, 1.8.

The results recorded in Principle 2, Principle 3 and Principle 4 show fluctuations in the extent to which they are applied: they mainly vary between “Partially applied” and “Not applicable” (see area 4 - Principle 2, Indicators 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, Principle 3, Indicators 3.1, 3.3, 3.4, 3.5, Principle 4, Indicators 4.1, 4.2, 4.3 and 4.4).

There are also contradictions in the results reported in the Daily Survey Survey and the Daily Self-Assessment Report - Principle 2, Indicators 2.1, 2.2, 2.3, 2.4, 2.6; Principle 3,

Indicators 3.1, 3.3, 3.4 and Principle 4, Indicator 4.2.

These contradictions focus attention on the need to rethink the process of interaction towards the understanding that:

- health and nutrition with children under the age of 3 are an integral part of creating affection;

- the affection of the child under the age of 3 is a dynamic process that requires the continuous creation of close and positive interactions during nutrition and care.

An important part of supporting children under the age of 3 is to master procedures for giving recommendations to families when children show signs of atypical behavior, depression or anxiety. The analysis of the results in this context unambiguously shows that “joint engagement in this process requires, besides recognition and acceptance, also readiness to discuss differences of opinion and to deal with everyday problems” (Vitanova and Miteva, 2017: 201)

Undoubtedly, the **Fifth Priority Area** is extremely important in the Quality Framework for Early Childhood Services. Development and learning are the synchronized process that allows the potential of the child under the age of 3 to be unleashed.

The marked responses in the “Daily report for self-assessment” are mostly in the highest scale of the “Applying permanently” scale - see Development and Learning, Principle 1, Indicators 1.1, 1.2, 1.3, 1.4; Principle 2, Indicators 2.1, 2.4, 2.5; Principle 3, Indicators 3.1, 3.2, 3.4, 3.5; Principle 4, Indicators 4.1, 4.2, 4.3, 4.4.

On the other hand, the dynamics in the responses from the “Daily Surveillance Report” deprives the credibility of the registered indicative components by the cluster teams, given that the monitoring expert predominantly notes the claims in the “Partially applied” and “Not applicable” columns - see Development and Learning Area, Principle 1, Indicators 1.1, 1.3, 1.4; Principle 2, Indicators 2.1, 2.2, 2.3, 2.4, 2.5, 2.6; Principle 3, Indicators 3.3, 3.4, 3.5; Principle 4, indicators 4.1, 4.2, 4.3, 4.4.

This finding draws attention to a relatively high percentage amongst the cluster members who are sufficiently aware that care must always be approached as opportunities.

Nevertheless, it turns out that practitioners do not have the specific competencies necessary for “situations in which, when playing, the child exhibits his abilities and personal qualities, inspired by the experience and gain-

ing on his basis new own experience” (Dimitrova, 2017: 33) to make the most of them for development, learning and well-being for the child under 3 years of age.

“Surveillance and Documentation” (**Sixth Priority Area** in R & DD) is the basis for adults to be open and to build relationships with babies and very young children.

There is a growing recognition that systematic “monitoring and documentation” of the well-being of children under the age of 3 determines the planning of new learning practices, the adaptation of the environment as well as the refinement of timetables, activities and adaptation of care needed for early childhood development.

These regularities underline the importance of the Sixth Priority Area in providing quality services in early childhood. There are again inconsistencies in the classification of these statements.

Representatives of the cluster teams have their answers mostly in the “Applying permanently” scale against the “Part-Apply” and “Non-Applicable” responses marked by the Expert-Monitoring - see Section 6, Principle 1, Indicators 1.1, 1.3, 1.4; Principle 2, Indicators 2.1, 2.2, 2.3, 2.4; Principle 3, Indicators 3.1, 3.2, 3.3, 3.4; Principle 4, indicators 4.1, 4.2 and 4.3.

It can be summed up that data in the “Daily Surveillance Report” and in the “Daily Self-Assessment Report” reveals the objectively binding of the observed indicator components in the marked answers. Their analysis is in the direction of the different starting points that respondents place in the focus of their attention:

- Certainly the representatives of the cluster teams, in the capacity of medical specialists, carry out systematic observations and document the actual health status of each child, which explains the claims in the degree “Applying permanently”;

- as a pedagogical specialist, the monitoring expert focuses on the essentials in the documentation and planning process: as a way to take into account the progress of the child in the interactions that explains the claims in the “Partial Apply” and “Not Applicable” assumptions.

It is objectively appreciated that positive changes are reported in the efforts of the cluster teams to respond to the need for close relationships with parents. A testimony in this direction is the sharing of analyzes of the instrument used to evaluate child achievement - the child’s portfolio - used in the three clergy

groups.

Undoubtedly, the **Seventh priority area** of the “Quality Framework for Early Childhood Services” (QFECS) has accumulated the highest number of matches in the registered results from the cluster teams and the monitoring expert. The observed similarities of the reported statements are observed in the separate 5 principles and their corresponding indicators.

Since the indicators of a safe, healthy and supportive environment are meaningful, the high values of the positive response are a clear indicator of the validation of the appropriate choice in the organization of the environment in the study groups.

This result corresponds directly to the quality of services in the early childhood and is a reliable source for the following summaries:

- cluster teams maintain a physical and emotional environment that minimizes conflicts among young children - see Priority Area “Supporting Circles”, Principle 1, Indicators 1.1, 1.2, 1.3, 1.4, 1.5;
- cluster teams provide sufficient resources to stimulate all areas of child development - see Priority Area “Supporting Circles”, Principle 4, Indicators 4.2 and 4.3;
- the blind teams are aware of the crucial role of a supportive environment that develops a sense of belonging to the child up to the age of 3, Principle 5, indicator 5.2.

The complexity and complexity of the indicators under discussion in this priority area requires the following statement: additional care is needed for the specialists in the cleric groups to use appropriate pedagogical interventions in the course of interactions with the child under the age of 3 (see Seventh area, Principle 2, Indicator 2.3, Principle 3, Indicators 3.1, 3.4, Principle 5, Indicators 5.1, 5.3).

In this direction for the pedagogy of early childhood there is a sufficiently large array of studies devoted to the psychological characteristics of children. It is their age-specificity that argued that “authoritarian educational methods and normative directives a priori can not be dominant at this age and can not determine the child’s invisible and visible self-esteem” (Yanakieva, 2014).

The principles included in the **Eighth Priority Area** focus on the link between the quality of services provided by children under the age of three and the level of training and professional development of adults working with them. The indicators that “illuminate” this relationship are sufficiently eloquent to

reflect the current state of the respondents in this study.

Coincidences in the claims marked in the Daily Surveillance Report and in the Daily Self-Assessment Report are clearly noticed - see “Professional Development”, Principle 1, Indicator 1.1, 1.2; Principle 2, Indicator 2.1, 2.2, 2.3, which reveals the attitudes of the teams scrutinized to increase their competencies towards addressing the specific needs of the child under the age of 3.

However, the reported contradictions in Principle 1, Indicators 1.3, 1.4 and Principle 2, Indicators 2.4, 2.5 - a finding pointing to the fact that there are still some specialists accompanying children under the age of 3 who “Do not think that it is necessary to continually analyze and enrich their own teaching experience” (Stošić and Stošić, 2013).

It is obvious that adults working with children under 3 years need a toolbox that:

- allows identification of main areas and experience in the child’s holistic development in order to communicate sensitively with families;
- requires an advocacy role when development of the child is hindered in any way; help develop strategies to respond to the unpredictability and insecurity caused by rapid changes in society as a whole in family life in the 21st century.

The **9th priority Area “Cross-sectoral cooperation”** draws attention to the need to apply the multidisciplinary approach in early childhood. Naturally, this process needs knowledge that goes some way beyond the professional competence of adults accompanying a child from 0 to 3 years.

The results in the attached tables (No. 32 and No. 33) outline the tendency for sufficiently active and searching behavior of the teams of the groups in this direction. The presented ratios are a demonstration of the maturity and responsibility of the participants about the irreversible sensitivity of the age period and the maximum utilization of the internal conditions for development of the child created by this sensitivity.

Registered answers in the “Partially applied” and “Not Applicable” roles - see Nine Fields, Principle 1, Indicators 1.1, 1.4, 1.6, 1.7; Principle 2, indicators 2.2, 2.3, 2.4, 2.5 and 2.6, reveals the difficulty of the cluster teams:

- to provide care and support services to children and their families during critical early childhood periods;
- to use valid, reliable and appropriate

screening tools recommended by early childhood diagnostics to monitor the condition of children;

- to maintain a trust relationship with the families of children with developmental delays, in order to obtain up-to-date information as part of the ongoing evaluation process;
- to ensure a smooth transition in the establishment of a network of relations to ensure partnership with institutions and non-governmental organizations (NGOs).

5. CONCLUSIONS

The results of the study, which is related to the issue of early childhood well-being in the institutional care system, reveal deficiencies resulting from:

- applying still inertial patterns of interactions with children and their families;
- unjustified, partial and therefore ineffective structuring of a unified strategy for the functioning of the CSS;
- sporadic, partial and fragmentary attempts to transform institutional care policies into early childhood.

Undoubtedly, the principles and indicators differentiated in the Nine Priority Areas of the Applied Framework outline the essence of the relationship and meaning of care with children from birth to 3 years. Formulated metrics make it possible to specify the steps in the process of their creation, deployment and maintenance. It can be conclusively concluded that its use impersonates "the necessity for educational results in the shape of competence as an indicator of human capital" (Tsankov, 2018: 69).

In this regard, the objective analysis of the results obtained from the "Quality Framework for Early Childhood Services" (QFECs) in the three clerical groups reveals a priori its reflected reflexion, causing proactive (conscious) striving for quality services at all levels. It is precisely this inductive feature that nominates the Framework as a reliable and robust tool for enhancing the quality of early childhood services.

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Conflict of interests

The author declares no conflict of interest.

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CHILD NOMINAL DERIVATION AND PARENTAL INPUT: EVIDENCE FROM MORPHOLOGY-RICH RUSSIAN

Dr. Victoria V. Kazakovskaya, Institute for Linguistic Studies (Russian Academy of Sciences)
E-mail: victory805@mail.ru

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ABSTRACT

The purpose of current article is to describe the early phases of first language acquisition of nominal derivatives in morphology-rich Russian approaching an ideal inflecting-fusional language type. The results are based on the naturalistic longitudinal observations of two typically developing monolingual children (1;5–3;0) growing up in middle socio-economic status families (33 hours of recorded spontaneous speech). It has been revealed that derivation morphology, viz. affixation, starts to develop early and precedes compounding. Within nouns, suffixation is the main method of word-formation. Prefixation and mixed methods are rare. Although nouns can be formed from almost any grammatical classes, they are mainly formed from nouns in child speech. Early compounds can be described as right-headed endocentric ones where their main component is a noun or a verb. The preference for certain patterns and models rarely differs in child speech corpora. Both children have similar development of semantic categories and only a few innovations. The morpheme and semantic (cognitive) complexity of nominal derivatives in child speech increase by the end of the observation period. The influence of parental input is significant for the mechanisms of derivation morphology acquisition. This is confirmed by the presence of a positive correlation for both lemmas and tokens of nominal derivatives. The most frequent patterns in parental input are acquired by a child earlier.

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1. INTRODUCTION

Derivatives have a more complex morphemic structure, compared with simplexes – non-derived lexemes. Their acquisition is connected with parental input (child-directed speech, CDS) and with cognitive development of children. However, to date, normative (i.e. regular) derivatives in the speech of children (child speech, CS) and their main caregivers have not yet been studied either from diary observations, nor from spontaneous speech data. The observations of [Gvozdev A. N. \(2007\)](#) are based on his diary of his own son's speech development where he pays attention to the features of the first derivative words, the semantics of derivational mor-

phemes and even the intonation of their pronunciation. But once their number increases in the speech of the boy (at 2;8), [Gvozdev A. N.](#) begins to focus on innovations (i.e. occasionalistic novel derivatives) that he identifies as “formations by analogy” (ibid). Our knowledge of the cognitive bases of regular derivational morphology is based on a few experiments with older children (e.g., [Jurjeva 2006](#) for Russian, [Vainio et al. 2018](#) for Finnish which is also a synthetic language, rich both in derivation and inflection). This determines the purpose of the current work: the study of derivational processes in the sphere of nouns in the early stages of speech ontogenesis.

Through the material of the Russian language, which is considered to be morphologically and morphemically rich language approaching an ideal inflecting-fusional language type ([Dressler 2007: 4](#)), we have a unique opportunity to employ this kind of analysis and to advance in solving a number of debatable issues facing modern psycholinguistics. In particular, the main controversial theoretical claims when discussing the acquisition of derivatives are a) that derivatives may be acquired as one item ([Berko 1958: 176](#),

Corresponding Author

Dr. Victoria V. Kazakovskaya, Institute for Linguistic Studies (Russian Academy of Sciences)

E-mail: victory805@mail.ru



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Nagy et al. 1993: 45) or b) children acquire derivatives while mastering them via affixation (Clark 2014: 425–439; see also Smolka et al. 2018). The presence of a relevant innovation in the speech of a child has long been considered to be an acquired criterion for a child of a particular pattern as well as the way of word-formation or an affix. But even A. N. Gvozdev underlined that not all the derivatives that “coincide with standard language” were borrowed by a child as a “whole, ready-made” from surrounding speech (Gvozdev 2007: 460, 465; Jurjeva 2006: 177).

The problem is that this is difficult to prove. In our opinion, one proof lies in the expansion of the criteria base and in the involvement of the representative data of the spontaneous speech, not only of children, but also of the parental input that they receive. The amount of input and the quality of mother–child interactions in mothers who differ in socio-economic status (SES), as well as in education, has been widely discussed in recent decades (e.g., Schwab and Lew-Williams 2016 for a review, Vanormelingen and Gillis 2016, Cadime et al. 2018, Richards et al. 2018, Tal and Arnon 2018).

After we have characterized the language material, methods, and have described the structure of the study, we will present the results and answer the questions that we faced. In particular, how does the number of deriva-

tives change by the end of the observation period? What is the ratio of derivatives and non-derived words in the speech of both partners in “adult (caregiver) – child” dialogue? How do derivation processes develop? How do qualitative and quantitative features of the derivational aspect of parental input (implying patterns, models, methods of word-formation, affixes, semantic categories of derived words, their diversity and frequency) affect the development of this component of the system-language competence of a child?

2. MATERIALS AND METHODS

The results discussed are based on the analysis of so-called ecologically pure language material, i.e. naturalistic longitudinal observations of “adult (parent) – child” communicative interaction (1;5–3;0). This is the data of typically developing Russian-speaking monolingual boys (Kirill and Filipp) from Saint Petersburg (Russia) families with middle SES. The main caregivers are their young mothers, who are students of humanitarian faculties of state universities.

The overall size of the audio and video recordings of spontaneous speech is more than 30 hours with about 74 500 tokens. Table 1 presents the characteristics of each CS subcorpus.

Table 1. Data: Child speech

Subjects	Length of recordings (hours)	Age (year; month)	Total tokens	Noun tokens	The proportion of nouns in the total number of tokens (%)
Kirill	5	1;8–3;0	5769	1518	26
Filipp	28	1;5–2;8	16486	3803	23
Total	33		22255	5321	

For future discussions it is important that despite the difference in the total duration of recordings and the number of tokens in each of the corpora, the percentage of nouns in the speech of both children is comparable.

The recordings used were decoded, transcribed and morphologically marked in accordance with the rules of the Child Language Exchange Data System (CHILDES) conducted by B. MacWhinney (2014). Next, these subcorpora – CS and CDS – were analyzed from the following aspects: 1) the ratio of derivatives and non-derived nominal tokens throughout the observation period; 2) the sequence of the emergence of derivatives and

their models; 3) derivational features of basic patterns, in particular, the part-of-speech characteristics of the producing (motivating) stem and the semantics of the means.

Additionally, both lexical (lemmas) and grammatical (types) diversity of derivatives, as well as their frequency (tokens) in speech were taken into account. The proportion of new (that is, first used by a child, first-appearing) derivatives and their subsequent repetitions was intentionally fixed. Finally, the productivity of patterns and morphemes in the modern Russian language (Švedova 2005) was taken into consideration. It must be emphasized that the parental input (hereinafter referred to as its

derivational component) received by a child and its correlation with CS (input vs. output) are analyzed for the first time.

The criteria for derivative acquisition (patterns, models, tools) – in addition to existing in CS innovations mentioned above – are considered to be a) productivity, which involves the use of a working morpheme with more than one producing stem, the presence of the derivational pair “non-derived lexeme → derived lexeme”, a derivational chain and – wider – a family; b) a variety of affixes expressing certain semantics; c) the degree of cognitive complexity (Kazakovskaya 2018). In turn, in order to determine the degree of productive use of the compounds, the use of derivational morphemes with one-root derivatives is essential, as well as the use of stems (i.e. components, or members of the compounds)

as separate words (Dressler et al. 2017a).

3. RESULTS

The size of nominal derivatives (in tokens) in the speech of Kirill was about 12% and in the speech of Filipp this number was 31% (see Table 2). The marked difference does not seem significant in comparison with the total prevalence of simplexes in the speech of both children. The proportion of new nominal derivatives in the total number of nouns in the speech of the boys was comparable (8% and 12%), but differed in the ratio of the volume of derivative words: in the speech of Kirill, the number of new derivatives exceeded their repeats.

Table 2. Nominal derivatives in child speech (lemmas / tokens)

	Nouns	Derivatives	% derivatives	New derivatives	% of new derivatives of the total number of derivatives	% of new derivatives of the total number of nouns
Kirill	580/1518	89/176	15/12	70/128	79/73	12/8
Filipp	874/3803	575/1168	66/31	280/456	49/39	32/12

The volume of nominal derivatives in CS increased as expected by the end of the observation period. The development of derivational processes and thereby the development of affixation was accompanied by so-called peaks, or spurts, in the use of the derived nouns, which is clearly demonstrated by Figure 1.

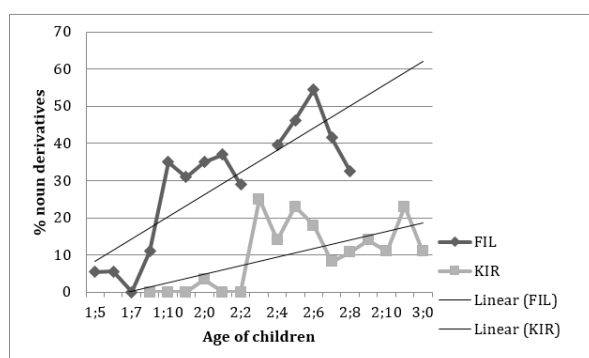


Figure 1. Distribution of derivative nominals in CS (% of all nominal tokens)

The very fact that different derivatives did not appear at the same time (despite the fact that all the models and means were already present in the earliest records in the input, see below), but gradually, in our view, there is evidence of gradual development (and, accordingly, child acquisition) of derivational morphology mechanisms, rather than blind copying of the speech of adults or imitation, although its role in the process of language ac-

quisition (in this case its derivational aspect) should not be underestimated.

In the speech of our young informants nominal affixation began to develop very early. First nominal derivatives were recorded when Filipp was in the middle of his second year (e.g., *dyr-k(a)* ‘hole-SM’ from (hereinafter >) *dyr(a)* ‘hole’), and for Kirill – when he was 2;0 (e.g., *prjan-ik* ‘gingerbread, cake’ > *prjan(yj)* ‘gingery.ADJ’). In both cases, their proportion in the total number of lemmas and their usage (in the analyzed recorded session) was low. It was, respectively, 7 and 3% in the speech of Kirill and 11 and 5.5% – in the speech of Filipp. Inflection of derivatives, i.e. the presence of at least one other grammatical form of derivative, was absent. Hereinafter the sign ‘(...)’ will be used for marking the endings of feminine and neuter nouns to distinguish them from suffixes. Most masculine endings are zero.

Compared to Filipp, Kirill was, metaphorically speaking, late in using nominal derivatives. He actively used childish naming units (cf. child-specific forms, CSF). There were, in particular, so-called protowords, including reduplications (see, e.g., Ota and Skarabela 2018) to denote different kinds of vehicles and the toys that represent them: e.g., *tsjata* ‘car.CSF’ (1;8), *djun’-djun’* ‘BMW.CSF’ (1;10), *fu-fun* ‘horse.CSF’ (1;8). At the same time there were more compounds in Kirill’s lexicon, which are also first used in the form

of reduplications, e.g., *kyn-kyn* ‘camera.CSF’ (1;9) (see more in Kazakovskaya 2017a). Both initial compounds and affix derivatives are often phonologically defective and opaque. According to recent studies focused on the acquisition of morphophonological alternations in Russian, children’s sensitivity to morphophonological patterns increases with age, viz. after 4;0 (Tomas et al. 2017: 453).

The development of nominal derivation started with productive language-system mod-

els and it was supported by input (see below). Such basic models were “noun (N) / adjective (ADJ) + affix(es)”: e.g., *zub-ok* ‘tooth-DIM’ (1;8) > *zub* ‘tooth.N’, *kniž-k(a)* ‘book-SM’ (2;3) > *knig(a)* ‘book.N’, *pra-ded* ‘great-grandfather’ (2;4) > *ded* ‘grandfather.N’; *čern-ik(a)* ‘blueberry’ (2;7) > *čern(yj)* ‘black. ADJ’ and “verb (V) + suffix”: e.g., *po/dar-ok* ‘present’ (2;4) > *po/dar/i(t’)* ‘present.INF’ (a gift), *br/i-tv(a)* ‘razor’ (2;5) > *br/i(t’)* ‘razor. INF, shave.INF’.

Table 3. Early nominal derivational patterns and models in CS (*lemmas / types / tokens*)

Patterns and models	Kirill	Filipp
1. N + affix	34 / 40 / 72	244 / 288 / 408
a. N + suffix	32 / 38 / 70	244 / 288 / 408
b. prefix + N	1 / 1 / 1	0
c. prefix + N + suffix	1 / 1 / 1	0
2. V + suffix	19 / 20 / 33	29 / 30 / 35
3. ADJ + affix	3 / 3 / 3	7 / 7 / 13
a. ADJ + suffix	3 / 3 / 3	5 / 5 / 10
b. prefix + ADJ + suffix	0	2 / 2 / 3
Total number	56 / 63 / 108	280 / 325 / 456
“N + affix” (% of all noun derivatives)	61 / 63.5 / 67	87 / 89 / 89.5

As shown in Table 3, the denominal model “N+suffix” turned out to be the most frequent.

In this case it is important that the derivational morphology mechanisms began to develop within the same lexico-grammatical class of words, cf. (Gvozdev 2007: 399). It must also be emphasized that the producing bases for the first derivatives were already present in the speech of children: e.g., *Filj-k(a)* ‘proper name-SM’ (1;6) > *Filj(a)* (1;5); *noč-nik* ‘night light’ (2;4) > *noč* ‘night’ (2;2), and the working morpheme – viz. suffix – was used by Filipp with several stems. However, recent studies (Kazakovskaya 2017b, 2018, Argus R. and Kazakovskaya, V. V., 2018) indicated that simplex can occur simultaneously with derivative: e.g., *kot-enok* ‘kitten’ (1;8) > *kot* ‘cat’ (1;8) or even later, e.g., *ptič-k(a)* ‘bird-DIM’ (1;6) > *ptič(a)* ‘bird’ (1;8).

4. DISCUSSIONS

According to our investigation, the earliest and most common method of derivation in the speech of children is suffixation. By the end of the observation period their morpheme repertoire looked very impressive and con-

tained an average of about 50 suffixes, as well as some prefixes (*pra-*, *pod-*).

Distribution of suffixes within each pattern and model, along with the order of their emergence in CS, is shown in Table 4.

Table 4. Affixes in early nominal derivatives (cumulatively)

Patterns and models	Number of affixes	General order of their emergence
1. N + affix	30	
a. N + suffix	27	<i>k, an’, ok, ik, uš, ux, nik, ut, čik, ek, ic, en(’)k, ušk, yšk, očk/ečk, c, ix, ul’, ess, n’, ink, av, ovn, ič, aljon, ovin</i>
b. prefix + N	1	<i>pra</i>
c. prefix + N + suffix	1 & 1	<i>pod & nik</i>
2. V + suffix	19	<i>k, ak, onok, ø,(e)n(i)j, d, l, unok, ux, lk, šk, v, nic, un, ščik, ok, tel’, (a)nk, tv</i>
3. ADJ + affix	8	
a. ADJ + suffix	6	<i>ak, yš, ic, ost’, ik, atin</i>
b. prefix + ADJ + suffix	1 & 1	<i>pod & ik</i>

A number of semantic categories of noun are formed with the help of suffixes within the framework of the above mentioned most frequent denominal pattern ‘N+affix’. In particular, during the second year of life and from the beginning of the third, diminutives were noted: e.g., *tet-en’k(a)* ‘aunt-DIM, auntie’ (1;11),

korov-ušk(a) ‘cow-DIM’ (2;0); cf. *det-ik** ‘child-DIM’ (1;10), nomination of females including animals: e.g., *vnuč-k(a)* ‘granddaughter’ (2;3), *ež-ix(a)* ‘hedgehog-FEM’ (2;2), young animals: e.g., *myš-onok* ‘mousekin’ (1;10), singulatives: e.g., *morkov-k(a)* ‘carrot-SG (one item)’ (2;2), as well as stylistic (i.e. colloquial) modifications of nouns: e.g., *mam-k(a)* ‘mother-SM’ (1;6), *kartoš-k(a)* ‘potato-SM’ (2;1). Following the academic grammar (Švedova 2005), we distinguish between diminutives and stylistic modifications of nouns: compare, e.g., *kolen(o)* ‘knee’ – *kolen-k(a)* ‘knee-SM’ – *kolen/oč-k(a)* ‘knee-DIM’.

According to the data of spontaneous speech under investigation, the occasionalistic novel derivatives (which are marked with an asterisk, see above *detik**) are singular in the sphere of affix derivatives (4 lemmas for more than 20 thousand words) and are absent in the field of compounds (Argus and Kazakovskaya 2013, Kazakovskaya 2017a), cf. (Tsejtin 2013 among her other works, Xarčenko and Ozerova 1999). The nominal innovations documented are produced according to the productive models (viz. diminutive and agentive) of varying degrees of frequency, both in CS and in CDS.

Subsequently, these semantic groups are replenished with new derivative lexemes and the variety of morphemes is increased: e.g., *kopyt-c(e)* ‘hoof-DIM’ (2;8), *princ-ess(a)* ‘princess-FEM’ (2;6), *medved-ic(a)* ‘bear-FEM’ (2;8), *izjum-ink(a)* ‘one raisin’ (2;7), *štuk-ovin(a)* ‘~gismo, one item’ (2;8), *babbl-ik** ‘bubble-DIM’ (2;9). Within the framework of this model it is clear that diminutives have the greatest variety of suffixes, and the most extensive opportunities for expressing of semantics.

Deverbal derivatives “V+suffix”, recorded mostly after 2;6, denoted an action or its result: e.g., *lep-k(a)* ‘molding’ (2;6), *ot/raž-enij(e)* ‘reflexion’ (2;6), *vnim/a-nij(e)* ‘attention’ (2;8), *rabot(a)* ‘work’ (3;0), referred to the agent: e.g., *past-ux* ‘shepherd’ (2;4), *gon-ščik* ‘racer’ (2;4), *isk/a-tel’* ‘finder, seeker’ (2;10), instrument: e.g., *evaku-ator* ‘evacuator’ (2;11), *mig/a-lk(a)* ‘flasher’ (3;0) and location: e.g., *mel’-nic(a)* ‘mill’ (2;7), *o/stan/ov-k(a)* ‘stop’ (2;8).

A few deadjectival derivatives “ADJ+affix(es)” represented by two models – viz. suffixal and prefixal-suffixal ones – expressed qualitative semantics. They are abstract nouns, such as *glup-ost’* ‘foolish’ (2;8) or names of the people, objects or locations that possessed it: e.g., *grjaz/n-ulj(a)* ‘~untidy per-

son’ (2;1), *pod-orex/ov-ik* ‘mushroom growing under the hazels’ (2;1), *gruz/ov-ik* ‘truck’ (2;4), *čern-ik(a)* ‘blueberry’ (2;7), *pod-guzn-ik* ‘diaper’ (2;9), *bol’n-ic(a)* ‘hospital’ (2;9).

A comparative analysis of the semantic categories of early derivatives revealed some sequence of their occurrence in CS (the time of the first fixation of the derivative in the speech of each child is presented below). So, after diminutives and stylistic modifications (1;5–2;3) there are nominations of females (1;6–2;3), young animals (1;8), actions (1;7–2;0), agents (1;8–2;0), singulatives (2;1–2;5), the results of actions (2;4), instruments (2;4–2;5). Derived nouns denoting males (2;4), occupations and/or activities (2;4–2;6), as well as derivatives with locative (2;6) and qualitative (2;8–2;9) semantics complete the list of semantic categories documented in CS up to 3 years.

The frequency of derivatives belonging to different semantic categories differs. In the sphere of the so-called early semantic categories (1;5–2;5), there are denominal diminutives, stylistic modifications of nouns, names of females and young animals. Singulatives and names of males, as well as deverbal nouns are used with a lower frequency. Among the latter are nominations of a process and/or its result, of an agent, of an instrument. “Late” semantic categories (2;6–3;0) are represented by the deverbal names of professions and/or activities, locations and deadjectival nominations of qualities.

When using other classification approaches, it is possible to say that the following order is observed in the sphere of derivative names of inanimate objects (covering nominations of different kinds of objects): from the derivatives with semantics of objectivity, in the broadest sense, to the derivatives which are more specific, viz. to singulatives and/or instruments. In the sphere of animate nouns young animals occur after females, then there are agents and, finally, male individuals. Thus objects and subjects precede actions/processes (along with their results, instruments or locations), and concrete nouns precede abstract ones. Children begin with nominal derivatives that denote people and objects. Nominations of processes and qualities appear later. This is justified, in turn, by the degree of cognitive complexity of the derivative, which has at least one more semantic element of the corresponding simplex. For example, denominal suffixal derivatives with diminutive and/or caressing semantics can be used by a child from the middle of the second year, regardless of the morphemic complexity of their derived

stem: e.g., *avtobus-ik* 'bus-DIM' (1;8); cf. *parovoz-ik* 'locomotive-DIM' (1;9) from the compound *par+o+voz-ø* 'locomotive' < *par* 'steam.N' +INTERF+ *voz/i(t')* 'carry.INF', *žučoč-ek* 'bittle-DIM' (1;10) from the diminutive *žuč/ok*, whereas nominations of qualities and/or their owners begin to appear sporadically only by the end of the third year: e.g., *glup-ost'* 'foolish' (2;8).

The development of the productivity of nominal derivatives takes place together with the appearance of the first grammatical forms of number and case. In particular, by 1;10 the speech of Filipp was marked by the first derivative chains (the pairs existed earlier), an occasionalistic diminutive and a new kind of suffixation (viz. zero suffixation, \emptyset).

When briefly describing less frequent nominal compounds, it should be mentioned that regarding this sphere the models that are not only productive for the language system but also transparent morphosemantically (see more in Kazakovskaya 2017a) are the first to appear in CS, cf. with compound rich languages like Finno-Ugric, Germanic etc. (Argus and Kazakovskaya 2013, Dressler et al. 2017b). Early Russian nominal compounds can be described as complex endocentric words where their main component is a noun: e.g., *foto+apparat* 'camera' (2;1) > *foto/grafičesk(ij)* 'photographic.ADJ' + *apparat* 'apparatus.N', *zoo+park* 'zoo' (2;3) > *zoo/logičesk(ij)* 'zoological.ADJ' + *park* 'park.N' (a final vowel of undeclinable and "international" modifiers and an interfix overlap (Švedova 2005: 451)) or a verb: e.g., *vert+o+let-ø* 'helicopter' (1;8) > *vert/e(t')* 'turn.INF' +INTERF+ *let/e(t')* 'fly.INF'- \emptyset , *par+o+voz-ø* 'locomotive' (2;2) (see above its morphemic structure). These main components occupy the final position in a compound and are connected to the modifier by interfixes -o- or -e- (the latter is rare).

We should note that a noun (as the head stem) is also in the lead in affixation. In most cases, the process of adding stems (one of which, the head one, is a verb) is accompanied by zero suffixation: e.g., *sam+o+let-ø* 'airplane' (2;0) > *sam* 'oneself.PRON' +INTERF+ *let/a(t')* 'fly.INF'- \emptyset , *mux+o+mor-ø* 'amanita' (lit. a mushroom killed flies) (2;2) > *mux(a)* 'fly.N' +INTERF+ *mor/i(t')* 'kill.INF'- \emptyset (cross-linguistic study of synthetic compounding in L1 see in Dressler et al. 2019).

Among the main semantic groups, represented by early child compounds, are agents, instruments and locations. They are mainly nominations of inanimate objects (most often

vehicles and/or similar toys): e.g., *par+o+xod-ø* 'steamship' (2;0), *beton+o+meš/a-lk(a)* 'concrete mixer' (2;5), *sam+o+s/val-ø* 'tipper' (2;5).

Thus the peculiarities of nominal derivation in the early stages of Russian language acquisition include: a) the precedence of affixation to compounding, b) the precedence and dominance of suffixation, c) the predominance of derivation that does not change the part-of-speech characteristics of the derivatives, d) the precedence of simple derivatives to complex ones (namely, formed with the help of two morphemes or from other derivatives including compounds).

The analysis of parental input (based on Kirill's data) showed that the number of nominal derivatives is significantly less than the number of non-derived nouns. So, in the CDS corpus it amounted to a third of all nouns, but it turned out to be twice as many in the speech of a child.

The distributive analysis revealed a consistent increase in the proportion of nominal derivatives in CDS which correlated with the data of CS (see above). At the same time peaks of derivatives usage were found: simultaneous at 2;3 and sequential at 2;10–2;11. It was symptomatic that the same process affected the functioning of compounds, with both peaks (at 2;5 and at 2;11) in the speech of a mother and a child coinciding in time. Such periods of a significant increase in the frequency of using a specific language tool not only indicate the influence of input, but also shed light on the mechanisms of fine-tuning (Snow 1995 among others). Currently, these processes are little studied, but very significant for language acquisition.

In general, Kirill's mother uses about 70 different affixes. The semantic categories of nominal derivatives in her speech are very diverse. For example, there were already 12 semantic groups in the first record (1;8), and their number did not subsequently increase later. This prevents us from tracing any progressive dynamics of their occurrence in the speech of the mother. However, the analysis of the frequency of derivatives can explain their sequence of acquisition by the child. We found that the frequency of use by an adult of a specific model and morpheme affects the speed of their acquisition by a child: the most frequent ones have a higher chance of getting into the child speech (Table 5).

Table 5. Availability of nominal derivatives and their acquisition

Patterns	Models in order of frequency in CDS (<i>lemmas / tokens</i>)	Models in order of emergence in CS: total number (<i>lemmas / tokens</i>); age
Noun + suffix	e.g., DIM <i>-k</i> : <i>golov-k(a)</i> 'head-DIM' (42/73), non-DIM <i>-k</i> : <i>koš-k(a)</i> 'cat-FEM' (23/48)	34/72; e.g., <i>myš-k(a)</i> 'mouse-DIM' (2;3), <i>vnuč-k(a)</i> 'granddaughter-FEM' (2;3), <i>kolen-k(a)</i> 'knee-SM' (2;3)
Verb + suffix	e.g., <i>ø</i> : <i>pri/cep-ø</i> 'trailer' (22/35), <i>-nij</i> : <i>max/a-nij(e)</i> 'waiving' (19/34), <i>-k</i> : <i>ras/čes-k(a)</i> 'comb' (10/20)	16/29; e.g., <i>gon-ščik</i> 'racer' (2;4), <i>pri/cep-ø</i> 'trailer' (2;5), <i>sid/e-nij(e)</i> 'seat' (2;6)
Adjective + suffix	e.g., <i>-ost'</i> : <i>vnešn-ost'</i> 'appearance' (5/5), <i>-k</i> : <i>ovsj/an-k(a)</i> 'oatmeal' (4/7), <i>-ic</i> : <i>um/n-ic(a)</i> '~clever person' (4/6)	4/4; e.g., <i>gruz/ov-ik</i> 'truck' (2;4), <i>bol'/n-ic(a)</i> 'hospital' (2;10)

The initial models of the nominative derivatives "ADJ+suffix" and "V+suffix" presented at 2;0 only by 1 lemma /1 type /1 token, respectively, as well as their suffixes *-ik* and *-un* do not become dominant in the speech of this child. There is a prevalence of denominal models and the sequence in the occurrence of affixes is as follows: *-k*, *-očk* (2;3) → *-nik*, *-ušk*, *-ščik*, *-ok*, *pra-* (2;4) → *-lk*, *ø* (2;5) → *-aljon*,

-tel', *-nij* (2;6) → *-ovin* (2;8) → *pod-&-nik*, *-atin* (2;9) → *-ic* (2;10) → *-(a)nk* (3;0).

Finally, the positive correlation between CDS and CS is also noted regarding the frequency of semantic categories occurrence, represented by derivatives (Table 6): both with respect to the diversity of lexemes (*lemmas*, $p=0.01$), and the frequency of their usage (*tokens*, $p=0.001$).

Table 6. Frequency of semantic categories of derivatives (% of new derivatives)

	CDS		CS	
	<i>lemmas</i>	<i>tokens</i>	<i>lemmas</i>	<i>tokens</i>
Diminutives	32	31	19	34
Activities/Results	18	15	16	13
Instruments	12	12	19	14.5
Abstract names	8	5	1	1
Stylistic modifications	5	6	9	6
Agents	4.5	5	10	9
Locatives	4	7	9	8
Singulatives	4	4	4	5
Females	3	3	3	1.5
Young animals	2	2		
Males	0.4	0.2	1	1
Objects (other)	7	10	9	7

5. CONCLUSIONS

The analysis of the longitudinal corpus of the spontaneous speech of children and their main caregivers showed that when acquiring a morphology-rich language, derivation processes develop ("switch on") very early. Although the class of nouns can be formed from almost any grammatical classes, most of them are formed from nouns (~70–90%). In terms of nouns, affixation precedes compounding, and material suffixation precedes zero one.

For nominal derivatives the dominant pattern is the denominative one ('N+suffix') with the biggest repertoire of suffixes: up to 3 years children use from 30 to 60 different suffixes of nouns. Within this pattern the fol-

lowing semantic categories are represented in nouns: females, young animals, singulatives, stylistic modifications (viz. colloquial speech variants), instruments, agents and diminutives. Despite the generally high frequency of diminutives in nouns, their proportion is different in the speech of both children (44–65%). Deadjectival nouns are represented by two models 'ADJ+suffix' and 'prefix+ADJ+suffix' expressing the semantics of concrete objects or subjects having these defined qualities, as well as location/place and abstract qualities. Thus, in children's nominal derivatives suffixation is the main method of word-formation; whereas prefixation and so-called mixed ways are rare. Here we can see the conditionality of the system-language productivity of both the

method of word-formation and the pattern.

Although the percentage of nominal derivatives to all noun tokens in the speech of both boys differs significantly, the percentage of first-appearing derivatives to all noun derivatives is quite a similar. Filipp starts to use derivatives earlier, has a bigger inventory of noun suffixes and diminutives and the development of derivation appears more intensive in his case, at least with occasionalistic novel noun tokens being more frequent. Kirill has more nominal compounds and his new nominal derivatives increase to the end of the observation. These differences may be explained by the input properties including the communicative strategies of the caregivers and also by the developmental strategies of the children.

The influence of language input is significant in the mechanisms of derivation acquisition. This is confirmed by the presence of a correlation “input – output” and is particularly visible in the fact that the most frequent patterns, models and morphemes in CDS are acquired by a child in the first place. The degree of cognitive and morphemic complexity of nominal derivatives in CS increases by the end of the observation period.

Thus, the preference for certain patterns is the same for both subjects and reflects the CDS and adult-directed speech. Both children have the similar percentage of new derivatives to all nouns (in tokens). The number of innovations is scarce for nouns. Children demonstrated the similar development of semantic categories.

ABBREVIATIONS

ADJ – adjective
 CS – child speech
 CDS – child-directed speech
 CSF – child-specific form
 DIM – diminutive
 INF – infinitive
 INTERF – interfix
 FEM – female
 PRON – pronoun
 SG – singulative (one item)
 SM – stylistic modification (colloquial speech variant)
 N – noun
 V – verb

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Conflict of interests

The author declares no conflict of interest.

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FORMATION OF STUDENTS' BODY BUILD AS AN ELEMENT OF WESTERN EDUCATIONAL STRATEGY (IN M. FOUCAULT'S THEORY)

Dr. Marina Bogdanova, Southern Federal University, Rostov-on-Don, Russian Federation

E-mail: maraleks27@mail.ru

Dr. Larisa Abrosimova, Southern Federal University, Rostov-on-Don, Russian Federation

E-mail: lara.abrossimova@mail.ru

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ABSTRACT

Human corporeality is directly related to the space of education, although education is interpreted as, first of all, an intellectual process of cultural heritage transmission. Nevertheless, the formation of student's physical body build is an important component of the state educational strategy. In accordance with the objectives and requirements of state and society there can be observed global changes in human corporeality within educational activities: the transformation of the body as a biological phenomenon into a socio-cultural phenomenon or "politically subjected body". The authors use Michel Foucault's ideas as the methodological base of their study of a student's body transformation processes. Foucault's ideas suggest that power influences an individual and their authentic behavior through the disciplining of their body, that the aim of the new type of power – the bio-power – is to increase the productivity and efficiency of a human body in the conditions of capitalistic industrial production, and that school is a specific disciplinary area, which allows to meet governmental demand for a new method of control via the production of "obedient bodies". The authors come to the conclusion that in the modern educational model, despite democratization and humanization processes Foucault's trends persist because education continues to be the part of the technocratic discourse. Modern school is a disciplinary space fenced off from the outside world, where there is a rigid hierarchy and a system of differences, physical drill, regulation, etc. All these are conditioned by the fact that school honors a governmental request for a technocratic person.

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1. INTRODUCTION

Educational strategy as an element of governmental regulation is a concept, which makes up the base of a long-term planning in the educational sphere. It includes the most fundamental and essential policies and methods as well as the main directions and principles of the development of the educational system as a consistent social institution. Speaking of the educational process strategy,

it is important to bear in mind its multilevel structure. Firstly, there are externally oriented educational strategies, which include creating positive environment, managing student's attention, assessment and evaluation, scaling and ranging, disciplinary body practices and the system of praise and punishment. Secondly, there are cognitive strategies, which consist of revising, reinforcement and improvement of knowledge and skills. Thirdly, there are metacognitive strategies, which include the planning of the educational process, its monitoring etc.

The aim of this study is to discover the importance of the educational strategy level, which deals with its outer side. We revised Michel Foucault's ideas about a disciplined body and his statement that "the body becomes a useful force only if it is both a productive body and a subjected body" in order to prove that Foucault's postulates are still relevant in

Corresponding Author

Dr. Marina Bogdanova, Southern Federal University,
Rostov-on-Don, Russian Federation

E-mail: maraleks27@mail.ru



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today's technocratic society. Specifically we will discuss the importance of disciplinary body practices of cognitive nature, which are widely applied in education and which lead to significant transformations in a student's body according to the social demand.

2. THEORIZATION OF HUMAN CORPOREALITY: RESEACH PERSPECTIVES AND SCENARIOS

Human corporeality has direct connections to the educational sphere, although education is interpreted as, first of all, an intellectual process of passing cultural senses from one generation to another. Nevertheless, corporeality plays an extremely important part in the processes of teaching, upbringing and education. Within these processes, human corporeality undergoes global transformations.

In postclassical philosophy, the theorization of human corporeality has different research perspectives and scenarios, represented in the existence of numerous approaches and trends: existential-phenomenological approach, philosophical-analytical and psycho-analytical approaches, philosophical-anthropological approach, postmodern discourse, cognitive science etc. Significant success in the understanding of human corporeality was achieved within the sociocultural approach, the representatives of which treat corporeality as a natural product of cultural development. The cultural-historical, informative-cultural and axiological approaches are found related to one another in the study of human corporeality due to their qualitative characteristics. The development of cognitive science, representing the unity of sciences, which work together on the research of a common object, i.e. human cognition, is recognized as a successful project. As the authors stated earlier (Bogdanova, Abrosimova, 2018, p. 5), in cognitivism the thesis that it is "impossible to comprehend the work of human mind and the cognitive functions of human intellect if the mind is treated apart from a person's corporal organization" is becoming commonplace.

Within these directions, corporeality is recognized as "the human body, transformed under the influence of social and cultural factors, possessing sociocultural meanings and senses and performing certain sociocultural functions" (Byhovskaya, 1997, p. 464).

Thus including the "physical man" into

the area of social life means the transition of his body from a biological to a sociocultural phenomenon. During such process of inclusion, the body "fits" into the social context and undergoes transformations to perform certain functions according to social and governmental demands.

Human body is exposed to intensive objective influences by society, as a result of which the natural body gradually "disappears", and instead of it the disciplined body appears, which is shaped through the creation of specific disciplining (disciplinary) areas, within which the former system of physical stimuli and reactions is replaced by new desires and intentions. Such disciplinary areas include family, school, religion, medicine and art, which, in the form of different models and recommendations, contribute to the appearance of the new formations of the body (Markov, 1997). Thus, the formation of a disciplined body is the practice of adapting one's body to society's anticipations and values.

There are a number of scientific papers, which discuss different aspects of body culture and formation. McKay, S. and Vertinsky, P. (2004) speak about "a common desire to shape and order the biological and social body as part of the modernistic project", H. Eichberg (in John Bale and Chris Philo, 2012), speaking about the formation of students' bodies in gymnasiums, points out the changes coursed by the industrial revolution and the necessity to create special environment for the body development.

A lot of scientists discuss a woman's disciplined body in different cultural and historical contexts. underlining the uniqueness of woman's body and the transformations it has undergone. Thus, Trethewey A. (1999) describes woman's professional disciplined body, Balsamo A. (1996) claims that in modern technocratic environment the body is still gendered as it has always been.

It is important to mention that the human body undergoes the most intensive influences in the educational sphere, which is quite explainable in terms of the functions of education as an essential social institution.

Strong traditions of researching the role and meaning of corporeality in the educational sphere have been formed in scientific literature. These are the works of foreign classics: G. Bataille, J. Baudrillard, P. Bourdieu, B. Waldenfels, M. Merleau-Ponty, J. L. Nancy, M. Foucault; the works of post-Soviet researchers: L. Gaznyuk, O. Gomilko, P. Gurevich, B. Markov, V. Podoroga, O. Shparaga.

Special significance belongs to the works of R. Birdwhistell, A. Frank, B. Turner and M. Featherstone, who laid the basis for building the sociological theory of the body and development of such branch discipline as "sociology of corporeality".

3. THE STUDENT'S BODY IN WESTERN SYSTEM OF EDUCATION: M. FOUCAULT'S HERITAGE

The following ideas by Paul-Michel Foucault make up the conceptual and methodological base of this research:

1. power influences an individual through his body by means of disciplining it;
2. the aim of the new type of power – the bio-power – is to control the life of a human body, which is treated as an essential source of creating the added value by way of increasing its productivity and efficiency with the help of disciplinary technologies;
3. school, hospital, caserne, factory – these disciplinary areas, though different in their purposes, are built according to the common principles: isolation, ranking, order, usefulness, penetrability.

Studying the genealogy of the forms of power, M. Foucault concludes that from the end of the 18th – beginning of the 19th century the old technologies of power gave way to the new ones due to the development of capitalistic industrial relations and formation of national states. While the former institutions of power were built according to the principle of direct oppression and personal violence, the "positive" power, also called the "bio-power" by M. Foucault, has other implementation scenarios. If power were only executed in the negative manner (the function of oppression), it would be fragile.

According to the new system of capitalistic industrial relations, which do not suggest any personal submission, the bio-power is aimed at governing the life as it is and it treats the human body as an essential source of creating added value by increasing its productivity and efficiency with the help of disciplinary technologies. As Foucault, P. M. (1995, p. 26) stated: "The body becomes a useful force only if it is both a productive body and a subjected body. This subjection is not only obtained by the instruments of violence or ideology; it can also be direct, physical, pitting force against force, bearing on material elements, and yet

without involving violence; it may be calculated, organized, technically thought out; it may be subtle, make use neither of weapons nor of terror and yet remain of a physical order".

M. Foucault distinguished six periods of western educational system, emphasizing that each one has its own method of supervising the student's personality (the topic of supervising a person within the system of education was studied by M. Foucault in his work "Discipline and Punish: The Birth of the Prison", originally 1975).

A special place in Foucault's historical-pedagogical retrospective belongs to the fifth period, called the "Transition period" (the 18th century), when government begins to position itself as the major booster of all transformations and initiatives in the educational sphere. In Foucault's opinion, this is the birth time of the "disciplinary society" and simultaneously the birth time of all controversies of modern western education. And, however paradoxical it may seem, despite the democratization of all the basics of social life, according to Foucault, the establishment of the new specific type of power with an absolutely different scale of control, called the "panoptic control", becomes the reverse side of establishing egalitarian political and economic structures, which realize human rights and freedoms.

The principle of the individual's usefulness and political controllability becomes the aim of education, which is patronized now not by the private initiative and local authorities, but special government structures. Power treats education not only as an institution of order maintenance, stability and assurance of citizens' political stability, but also as a mechanism for increasing the production force of society.

How to achieve this aim? It can be achieved with the specific organization of educational process, corresponding to the demands of the new type of society.

Isolation, ranking, order, usefulness and penetrability become the principles of educational process organization. M. Foucault defines these principles by a unified term of "disciplinary monotony", which represents strict alteration of the taught subjects, studied topics and questions, assessed by means of tests and exams, in the order of their increasing complexity. In this combination of obligatory alignments, every student gets a certain place in the system of school disciplinary area depending on his/her age, achievements and behavior. During the educational process,

they constantly move within the school area, delimited by organized intervals. Economic and technical rationality can only be ensured by detailed rules, faultfinding inspections and control over students' smallest fragments of life. To govern the educational process more effectively, school area has to be isolated from other social areas and be well observable, or panoptic. Foucault writes about the import of penitentiary technique into the system of education: "The workshop, the school, the army were subject to a whole micro-penalty of time (latenesses, absences, interruptions of tasks), of activity (inattention, negligence, lack of zeal), of behaviour (impoliteness, disobedience), of speech (idle chatter, insolence), of the body ('incorrect' attitudes, irregular gestures, lack of cleanliness), of sexuality (impurity, indecency). At the same time, by way of punishment, a whole series of subtle procedures was used, from light physical punishment to minor deprivations and petty humiliations" (Foucault, 1995, p. 178).

Such organization of educational process helps to monitor students' achievements, eliminate cheating, assess capabilities and characters, and make classifications and hierarchizations depending on the produced results. Discipline creates government-required bodies, which become, on the one hand, more useful and efficient economically and, on the other, more obedient in relation to power.

It is a well-known fact that the first thing a child is taught in school is rules of corporal behaviour: how to stand, how to sit, what seat to take, how to hold a pen for writing, what its inclination angle and pressure should be like etc. The prescribed behaviour is imposed on the student by means of repetition and revision, punishment and praise. Thus, from the very beginning of school studying, the student gets accustomed to corporal obedience and strict regulations, which occur much earlier than acquiring skills of independent and critical thinking.

For example, Albert Einstein confirms Foucault's conclusions as he recollects his school and gymnasium years: "The teachers at the elementary school seemed to be sergeants, and at the gymnasium – lieutenants". It was the barrack spirit and drills which stopped the prospective great scientist from graduating, and which made him leave Germany and choose more democratic Switzerland for studying. While Einstein surpassed his classmates in Mathematics and Physics, he could not bear Latin and Greek, the teaching of which reflected the barrack spirit of gymna-

sium powers in full. When he moved to Switzerland, once again he wrote about the excessive drill in Zurich Institute of Technology: "...to become good, one had to possess an ability to concentrate all the energy on fulfilling tasks and loving order, which is necessary for writing down lectures and then processing them further. Such traits of character, as I had to admit regrettably, were not inherent in me! In fact it is quite a miracle that modern methods of teaching have not yet strangled the sacred curiosity completely, as this tender plant needs, together with praise, first of all freedom – without freedom it would inevitably die" (Gureev, 2017, p. 24).

So what has changed in the modern system of education? Have they managed to implement the habitus of "invention, creation and freedom" into the whole system of education, according to Bourdieu's ideas? Have they managed to eliminate drill and barrack spirit?

4. THE CONSTRUCTION OF HUMAN CORPOREALITY IN MODERN SCHOOL

Criticizing the classical educational model, Bourdieu P. (1997) proclaims the new one and refers to the concept of "habitus", which he interprets much wider than the set of body skills. Speaking of his project for the transformation of classical education, he writes about the necessity to create habitus of "invention, creation and freedom", which will be possible if we incorporate such dispositions into our bodies, which are able to make a counterbalance to the natural tendencies and cultural routine. "We need to introduce new rationalism, the extended rationalism which is open to the things it studies and which realizes its limitations. ...This rationalism of benevolence and freedom will give place to imagination, feelings and sensitivity, and therefore to art and practicality in all its shapes (that is why it has an unbreakable bond with democracy)" (Bourdieu, 1997: 126).

Everyone who has put their children to school must agree, that despite pedagogical tendencies as well as democratization and humanization processes, the obligatory attributes of modern school appear to be the same as they were before; modern school is an isolated from the outer world disciplinary area with strict hierarchy and differential system, corporal drill, statutory rules and regulations, where a certain place is prescribed to everybody in

this hierarchy. Every class and every student, depending on their academic performance, assiduity and behavior, take a certain place and constantly move from one grade to another.

A question arises if it is possible and necessary to change the current disciplinary school structure. It seems that in the present civilization situation it is impossible, because school fulfills the demand for a technocratic person.

Modern educational discourse is a part of technocratic discourse. The idea that modern world is constructed by technology and is subordinate to it, and that all the major problems of this world, including the ones which are caused by technology itself, can be solved by technical means becomes the basic precondition of technocratic discourse. Within technocratic discourse all the basic spheres of human activity such as science, engineering, sport, industry, education, institution of power and medicine are explained "technically". The categories describing the questions, connected to these spheres of human activity, represent rationality, specialty, normativity, seriality and pragmatism. As it is fairly said by Podoroga, V. A. (2005, p. 117): "Human body is now only an object. It is examined, dissected after death, taught, cured, trained, disciplined and forced to work – in one word it is given biological, anatomical, sociomorphic and cultural characteristics". Due to this fact the process of socialization, which every new generation goes through, cannot be spontaneous, but, on the contrary, it has to be regulated, standardized and rationalized. Every student has to be "described, judged, measured, compared with others, in his very individuality; and it is also the individual who has to be trained or corrected, classified, normalized, excluded, etc." (Foucault, 1995, p. 191) according to aims and requirements of society.

With the development of social relations, the outer control is shifted to the inner control. It might seem that in modern society there are no strict prohibitions and canons, which regulate appearance, manners, clothes and so on. However, there are implicit communicative norms, which organize both the shape and the inner affects of the body. These days classroom management is aimed at improving students' everyday life (Dizdarevik, J. D., 2014), so the question whether it is necessary and possible to change the attitude to bodily restrictions and behavior is still acute.

5. CONCLUSIONS

Apparently, education is not only an intellectual process of passing cultural senses from one generation to another, but also a process of modelling a student's body according to social and governmental needs and demands. Increasing its production capabilities as well as nurturing loyalty and obedience are the purpose of the changes, which the student's body undergoes. School is an isolated from the outer world disciplinary area with strict hierarchy, statutes, differential systems and corporal drill.

In modern educational model the characteristics, described by Foucault as the characteristics of the 18th-century school, remain relevant as western educational strategy keeps on fulfilling the demand for a technocratic person.

Conflict of interests

Authors declare no conflict of interest.

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A REVIEW OF NEUROPHYSIOLOGICAL AND GENETIC CORRELATES OF EMOTIONAL INTELLIGENCE

Dr. Kosonogov Vladimir, Southern Federal University, Russian Federation

E-mail: vkosonogov@sfedu.ru

Dr. Vorobyeva Elena, Don State Technical University, Southern Federal University, Russian Federation

E-mail: evorob2012@yandex.ru

Dr. Kovsh Ekaterina, Southern Federal University, Don State Technical University, Russian Federation

E-mail: emkovsh@sfedu.ru

Dr. Ermakov Pavel, Southern Federal University, Russian Federation

E-mail: paver@sfedu.ru

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ABSTRACT

The article is an overview of modern studies of brain organization and genetic correlates of emotional intelligence. Emotional intelligence is becoming the subject of more and more attentive study of psychologists due to the fact that it influences the mental development of humans, plays an important role in many professions, and its impairment is a marker of some disorders. Nevertheless, the brain organization and genetic correlates of emotional intelligence have not been studied enough – first studies appeared only in the early 2000s. A review of the literature on the encephalographic showed that in rest, people with higher emotional intelligence show greater excitation of the left anterior regions of the brain. When perceiving affective stimuli, participants with high emotional intelligence show stronger synchronization of some EEG rhythms. Brain mapping technique made it possible to identify the areas of the brain involved in activities related to emotional intelligence. In regard to genetic correlates of emotional intelligence, some genes of neurotransmitter systems have been associated to this trait: the catechol-O-methyltransferase gene COMT, the dopamine DRD2 receptor gene, the serotonin receptor gene HTR2A, and the BDNF brain neurotrophic factor gene.

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1. INTRODUCTION

Emotional intelligence is an ability to process emotional information, including recognition of one's own emotions and emotions of other people, expression of emotions and adaptive regulation of emotions, which ultimately provides a more effective solution of applied life problems (Mayer, DiPaolo and Salovey, 1990). Nowadays the concept of "emotional intelligence" is widely used in applied research (engineering psychology, developmental psychology, psychiatry, behavioral economics, family psychology etc.) For

example, patients with depression have low rates of emotional intelligence (Downey et al., 2008), and teachers with low emotional intelligence have higher probability of professional burnout (Pishghadam and Sahebjam, 2012). However, only now scholars begin studying the neurophysiological and genetic correlates of emotional intelligence.

Jaušovec and coworkers (Jaušovec, Jaušovec and Gerlič, 2001), perhaps, was the first to study emotional intelligence using the method of electroencephalography (EEG); they found a slight desynchronization of the alpha rhythm and a large synchronization of the theta rhythm in the left hemisphere in participants with a high level of emotional intelligence. Kemp and colleagues (Kemp et al., 2005) revealed interhemispheric asymmetry associated with emotional intelligence, namely, excitation of the left frontal regions was higher at rest in individuals with high emotional intelligence; although in a later study in children no such results were found (Santesso, Dana, Schmidt and Segalowitz, 2006). Later,

Corresponding Author

Dr. Kosonogov Vladimir, Southern Federal University, Russian Federation

E-mail: vkosonogov@sfedu.ru



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Mikolajczak and colleagues (Mikolajczak, et al., 2010) confirmed that the excitation of the left frontal regions at rest is higher in participants with the higher level of emotional intelligence. Freudenthaler, Fink and Neubauer (2006), in turn, found a larger amount of event-related desynchronization in participants with interpersonal low emotional management abilities in both sexes.

There are also few studies of neural underpinnings of emotional intelligence with the use of various stimuli. Jaušovec and Jaušovec (2005) found a high synchronization of the EEG gamma rhythm and low desynchronization of the EEG alpha rhythm in participants with high emotional intelligence during pictures with people expressing different emotions. Kniazev and colleagues (Kniazev, Mitrofanova and Bocharov, 2013), presenting angry and happy faces, revealed a high synchronization of theta rhythm in the first 500 ms in participants with high emotional intelligence; and the analysis of the activity after 500 ms showed that synchronization of the theta rhythm of the EEG in the left frontal areas was higher during the perception of happy faces in participants with high emotional intelligence. Raz et al., (2013) recorded event-related potentials during watching affective pictures and revealed that participants with high emotional intelligence exhibited significantly greater P2 and P3 mean amplitudes at posterior-parietal and frontal scalp locations than participants with low emotional intelligence. Rusalova's laboratory, in turn, conducted several electroencephalographic studies of vocal emotion recognition and revealed a large initial (base-line or at rest) activation, as well as a higher level of local activation of the posterior temporal cortex of the right hemisphere and the anterior parts of the left hemisphere in the recognition of emotions in participants with low rates of vocal emotion recognition (Kislova and Rusalova, 2008; Kislova and Rusalova, 2009; Rusalova, Kislova and Sidorova, 2010).

Brain mapping with different types of tomography in participants with brain diseases and emotional intelligence impairment allowed to identify the following brain areas associated with emotional intelligence: left posterior temporal cortex, left posterior superior temporal sulcus, left temporoparietal junction, left orbitofrontal cortex, left anterior cingulate cortex, anterior insula (Barbie, Colom, and Grafman, 2012). Earlier studies also found the influence of limbic areas, cerebellum, visual cortex (Killgore and Yurgelun-Todd, 2007) and dorsolateral frontal cortex

(Krueger et al., 2009) on emotional intelligence. Studies of emotion recognition in participants with brain lesions suggest that lesions in the right hemisphere lead to impaired recognition of emotions from speech (Heilman, Scholes, and Watson, 1975; Kucharska-Pietura, Phillips, Gernand and David, 2003; Ross, 1981; Wunderlich, Ziegler and Geigenberger, 2003); however, lesions of the left hemisphere can also lead to a decrease in recognition of emotions from speech (Kucharska-Pietura et al., 2003, Seron X., van der Kaa M.A. and van der Linden, 1982).

Regarding the study of emotional intelligence in other species, we can mention the studies of the instrumental reaction to the release of pain of others. When a subject pushes a lever, another animal ceases to feel pain, that is a reinforcement for the subject animal. In dogs and rats, about 30% of individuals are capable of such empathy. The study of morphological structures, possibly taking part in the reaction of such emotional resonance, found that bilateral destruction of the hippocampus does not have any significant effect on this behavior. Destruction of the amygdala and hypothalamus led to the opposite results. Destruction of the cingulate cortex improved this reaction; however, destruction of the periaqueductal gray worsened this instrumental reaction in rats during painful stimulation of another individual (Simonov, Pigareva and Brazovskaya, 1978).

Further studies of the brain correlates of emotional intelligence, in our opinion, will be focused on the identification of areas that is responsible for various components of emotional intelligence (recognition and use of one's own and other people's emotions), as well as on the study of the impact of different areas of the brain on activities that require a high level of emotional intelligence.

The analysis of modern studies of the genetic correlates of emotional intelligence shows the lack of the sufficient number of studies aimed at studying the molecular genetic prerequisites of emotional intelligence, although the formulation of the question of the genetic factors of the ability to recognise emotions is not new and goes back to the works of Charles Darwin (Alfimova, 2016).

Several papers postulate that emotional intelligence is a complex phenomenon that is the result of a complex genotype-environmental interaction. Genealogical and twin studies conclude that emotional intelligence probably is inherited via mechanisms like the other personal traits (Vernon, Petrides, Bratko and

Schermer, 2008).

Since environmental conditions differ for representatives of different ethnic groups, the frequency of polymorphic variants of genes associated with psychological characteristics (including emotional intelligence) should be different for different populations. Thus, there is evidence of ethnic differences in the various components of emotional intelligence (Naimanova and Adushinova, 2017). The effectiveness of the recognition of basic emotions is different in carriers of different ethnic groups as well (Karabuschenko and Khvorova, 2017).

The literature also broadly presents the results of the study of molecular genetic basis of psychological characteristics associated with emotional intelligence (neuroticism (Nagel et al., 2017), propensity to leadership and other characteristics (Forero, Pereira-Morales and González-Giraldo, 2016)). However, the molecular genetic basis of emotional intelligence has not been studied yet. Nevertheless, clinical studies in schizophrenia patients have shown an association of the ability to correctly recognize emotions and the gene of the serotonin transporter SLC6A4 (Alfimova, 2016).

The association of neurotransmitter systems with human emotional reactions (Iumatov, 1995) suggests an association between the genes of neurotransmitter systems and indicators of emotional intelligence. These genes are the gene of catechol-o-methyltransferase COMT, the gene of dopamine receptor DRD2, the gene of serotonin receptor HTR2A, and the gene of neurotrophic factor of the brain BDNF, associated with the development of hippocampal neurons, cortex and anterior brain (Mandel, Ozdener and Utermohlen, 2009). These genes take an active part in providing neuroplasticity (Popova, Ilchibaeva and Naumenko, 2017) which can be associated with emotional intelligence.

It is known that the **gene of catechol-o-methyltransferase COMT** is associated with the brain dopamine system. In the work of Goya and coworkers (Gohier et al., 2014) women, carriers of the polymorphism val-158met of the gene COMT, were asked to solve a computerised task on recognition of facial expressions, which included a distinction between neutral faces and faces expressing emotions (fear, anger, sadness and happiness). It was found that the carriers of Met allele homozygotes of COMT gene were more inclined to recognise neutral facial expressions as angry compared to the carriers of Val allele homozygotes of COMT gene.

Lin and colleagues (Lin et al., 2013) found that the carriers of Met allele of the COMT gene are better than the carriers of the Val allele in differentiating expressions of emotions.

In clinical studies (Schneider et al., 2012) in a sample of patients with a deletion chromosome 22 (a neurogenetic disease associated with a high risk of schizophrenia), it was found that a more pronounced decrease in motivation was observed in the carriers of the Met allele of the COMT gene. Homozygous carriers of the Met allele, according to another study (Thompson et al., 2012), have an increased risk of behavioral and emotional problems at the age of 7 and 11 years compared to heterozygous or homozygous carriers of Val158Met polymorphism, but only if they were subjected to prenatal stress and were born with reduced body weight.

In the work of Williams and co-workers (Williams et al., 2010) the effect of the polymorphism Val66Met of catechol-o-methyltransferase of the COMT gene (that is involved in dopamine and norepinephrine catabolism) on the emotional function of the brain and on the predisposition to recognise negative emotions in the expressions of happiness and fear. According to fMRI data, the presence of Met allele of COMT gene is associated with an increased activation of the brain stem, amygdala, basal ganglia and medial prefrontal areas during recognition of fear and with a reduced activation of these areas during recognition of happiness.

Dopamine receptor gene DRD2. In a study carried out by Blasi and co-workers (Blasi et al., 2009) studied the association of the DRD2 rs1076560 genotype with emotional stability, and physiology of the brain during perception of affective stimuli. It was found that in healthy carriers of the genotype GG emotional control was reduced in comparison with the carriers of heterozygous genotype. They also found that amygdala, dorsolateral prefrontal areas and medial pre-frontal areas took part in the facial emotional recognition.

Alfimova and co-workers (Alfimova et al., 2017) found the participation of DRD2 gene polymorphisms in emotion recognition in schizophrenics. However, the worst result of emotion recognition was observed in patients with the minor allele of dopamine receptor DRD2 gene in combination with the minor allele of the GRIN2B gene.

In the work of Gadow and employees (Gadow, et al., 2014), it was shown that dopaminergic system genes, including DRD2,

are associated with symptoms of emotional dysfunction, and attention deficit/hyperactivity disorder in children with autism spectrum disorder (ASD).

Gene of brain neurotrophic factor BDNF. Koven and Demers (Koven and Demers, 2014) shows the association of genes of neurotrophic factor of the brain (BDNF) and serotonin (5-HT) with emotional intelligence measured by the test of Mayer, Salovey and Caruso in healthy adult men.

Lau and coworkers (Lau et al., 2010) investigated the relationship between the genotype of BDNF gene and the accuracy of recognition of fear, anger, happiness and neutral expression in adolescents with anxiety and depression disorders and the control group of healthy adolescents with simultaneous magnetic resonance imaging. It was found that the carriers of the Met allele of the BDNF gene demonstrated a more pronounced activation of the amygdala and hippocampus during recognition of emotional faces than the carriers of the Val / Val homozygotes. These data show the contribution of BDNF gene variants to the brain correlates of adolescent anxiety and depression.

CONCLUSION

Thus, the genes of neurotransmitter systems, such as the gene of catechol-o-methyltransferase COMT, the gene of dopamine receptor DRD2, the gene of serotonin receptor HTR2A, as well as the gene of neurotrophic factor BDNF can be considered a genetic basis associated with emotional intelligence due to their influence on the features of information processing by the limbic, striopallidary systems and prefrontal cortex regions, and also because of their connection with the duration, intensity, stability and sign of emotional reactions.

It is interesting and relevant to study the distribution of alleles of these genes in carriers from different ethnic groups, in combination with a psychophysiological study on the registration of electrical activity of the brain in the recognition of emotional faces. This would help defining the prerequisites for understanding ethnic differences associated with emotional intelligence.

To solve this problem, in our opinion, it is appropriate to use the method of recording the electrical brain potentials of people of different nationalities, carriers of various genotypes of the COMT, DRD2, HTR2A, BDNF

genes, while they are solving tasks, associated with recognizing facial expression, and during the search for solutions to problems with a difficult emotional context ("What does a person feel in a difficult situation?", etc.). This scenario of the experiment will allow evaluating the success of emotion recognition expressed by actors of different nationalities, as well as revealing electro-physiological and genetic markers associated with various levels of emotional intelligence in people of different nationalities.

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Conflict of interests

The authors declare no conflict of interest.

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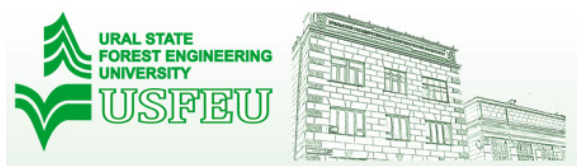
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